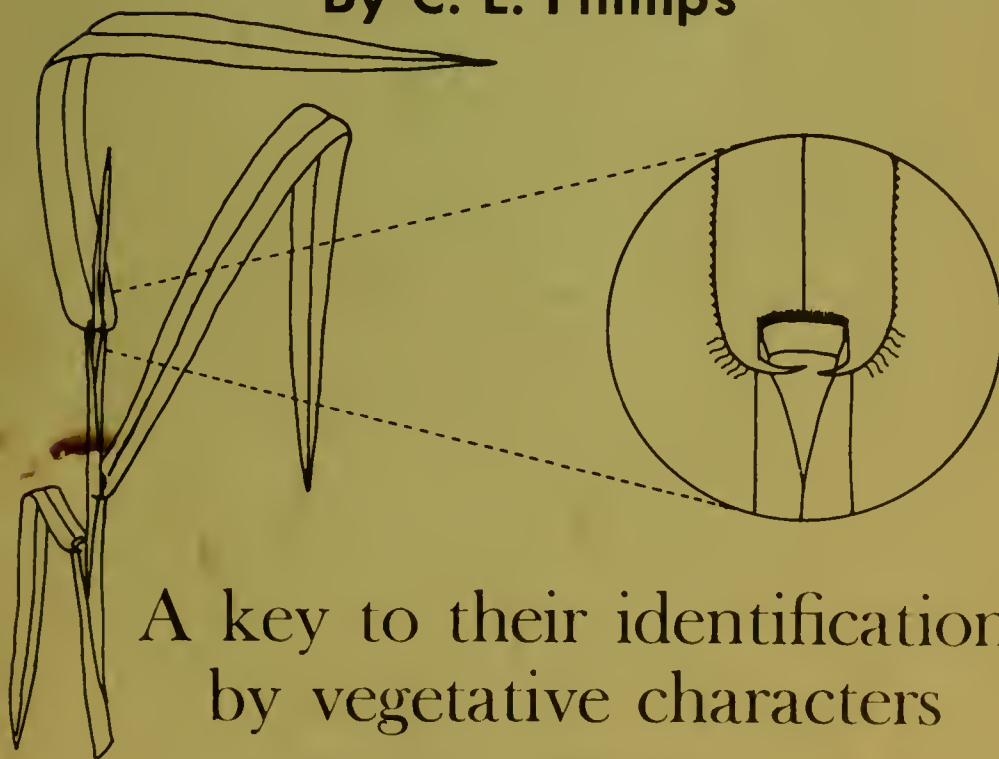


Field Manual No. 2 — July, 1962

George M. Gray Museum
Marine Biological Laboratory
Woods Hole, Massachusetts 02543

Some Grasses of the Northeast

By C. E. Phillips



A key to their identification
by vegetative characters

University of Delaware

Agricultural Experiment Station

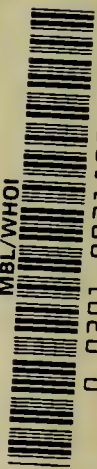
Newark, Delaware

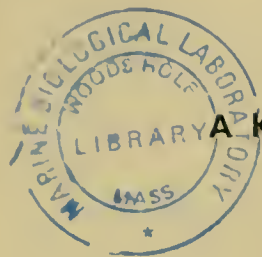
QK
495
.G74
P48



HAY AND ED MOUL

MBL/WHOI





SOME GRASSES OF THE NORTHEAST

A KEY TO THEIR IDENTIFICATION BY VEGETATIVE CHARACTERS

by

C. E. PHILLIPS¹

QK
495
G74
P48

In the last few years an increasing interest in weed-free turf and the wide acceptance of chemical herbicides has sharply focused attention on the necessity of identifying grasses by their vegetative characters. A European worker is credited with doing the basic work on the use of vegetative characters in an identification key about 80 years ago. Carrier (3) in 1917 developed the first in North America. Since then a number of such keys have been developed by various workers in the United States and Canada (see bibliography). None of these keys, however, included anywhere near all the grasses of economic importance in the Northeastern states.

The key presented here is an outgrowth of 15 years of teaching students to identify pasture grasses and some common weed grasses in their vegetative (non-flowering) state. Using descriptions of grasses from several publications, a number of tentative keys were constructed and tried with unsatisfactory results. Many of the grasses were found to show great variation from region to region in the detailed description of their vegetative characters. It was apparent that if a key was to be useful it would have to be based on vegetative descriptions made of the grasses growing in the region. Approximately 800 vegetative descriptions were made and used in the development of the key. Most of these were of grasses collected in the 12 Northeastern states and Virginia. In order to get a better idea of variations, however, some collections were made in a total of 34 states and one Canadian province. To assure uniformity, all descriptions were recorded on key-sort punch cards printed with a standard legend. Most of the key has been field checked by students and co-workers in Delaware and adjoining states.

No effort was made to include all the grasses of the Northeast in the key. An effort was made, however, to include most of those having economic importance. Most of those included are either species cultivated for various purposes or weed grasses of mostly agricultural situations. In addition to these, a number of grasses of interest to conservationists and wildlife people were also added.

Scientific names of the grasses are those given by Hitchcock (6). *Common names*, in most cases, are those used most frequently by many authorities. In a few cases the author found it necessary to coin a common name that seemed appropriate.

DISTINGUISHING THE GRASSES FROM THE GRASS-LIKE PLANTS

There are a number of the grass-like plants that may be easily confused with the true grasses. Not many of these are to be found in agricultural situations except in wet pastures and meadows. One sedge, however, nutgrass (*Cyperus esculentus*), is a common weed in cultivated fields in the Northeast, and the path rush (*Juncus tenuis*) is found in a variety of situations, particularly on compacted soil.

Since the key presented here deals only with the grasses, it is necessary to be able to distinguish

¹ Chairman, Department of Agronomy, University of Delaware.

the true grasses (Gramineae) from the sedges (Cyperaceae) and the rushes (Juncaceae). Study of the points presented in the following table will show how to separate them quickly.

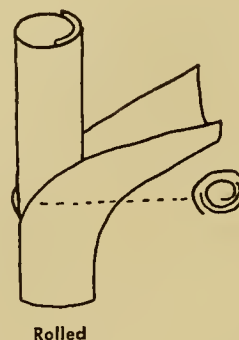
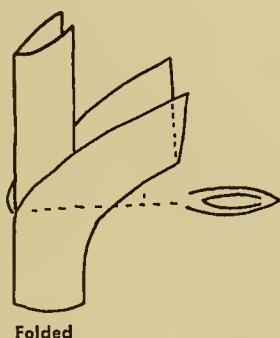
	Grasses	Sedges	Rushes
Stem	Usually hollow, cylindrical or flattened	Filled with pith, rarely hollow, usually 3-sided	Filled with sponge-like pith, cylindrical
Nodes	Conspicuous	Indistinct	Indistinct
Leaf arrangement	In 2 vertical rows or ranks	In 3 vertical rows or ranks	In 3 vertical rows or ranks
Leaf sheath	Usually split, closed in a few species	Usually closed	Open or closed
Collar	Mostly distinct	Indistinct	Indistinct
Auricles	Present or absent	Absent	Absent
Ligule	Present, rarely absent	Absent or weakly developed	Absent or weakly developed
Leaf blade	Usually flat, often folded, rolled or bristle-like, frequently hairy	Flat, multi-folded or bristle-like, rarely hairy	Channeled or round, usually wiry and without hairs
Leaf margins	Smooth, rough or hairy	Usually rough	Smooth

CHARACTERS USED IN IDENTIFICATION²

The characters found to be most reliable are discussed below with drawings to illustrate the principal variations used in the key. The descriptions and points of separation are based on the characters as found on the vegetative or lower leaves of the plant. Leaves high on the stem frequently have longer ligules and blades that are wider or less hairy.

1. Bud-shoot

The arrangement of leaves in the growing point or bud-shoot may be folded or rolled as shown below. The folded arrangement is usually found in flattened shoots and the rolled arrangement in round or cylindrical shoots. However, in some grasses, such as yellow foxtail and barnyard grass, the leaves are rolled in flattened shoots and in others, such as poverty oatgrass, folded leaves are in round shoots.



² This section mostly follows the general form first used by Nowosad, Swales and Dore. (8)

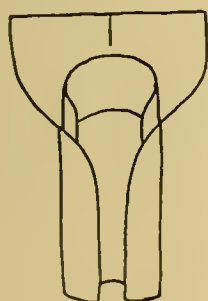
The rolled or folded character of the bud-shoot is very difficult to accurately determine (without special equipment) for the grasses with narrow leaves (2 to 4 mm.), such as the fine-leaved fescues, many of the bluegrasses and the bents. The use of this character as a point of separation for such grasses has therefore been avoided in so far as possible.

The arrangement of the leaves in the bud-shoot may be determined by cutting the shoot across below the ligule of the uppermost leaf and examining the section with a magnifier.

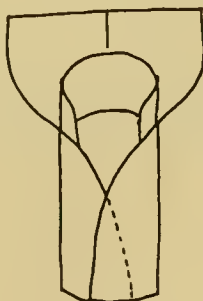
2. Sheath

The sheath is the tubular basal portion of the leaf surrounding the stem or the young growing leaves. Sheaths looked at in cross-section may range from distinctly flattened, as in orchard grass, to round, as in timothy.

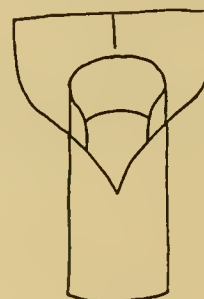
Sometimes the midrib extends downward into the sheath and the sheath is said to be keeled. The sheath is generally split to the base or node and the margins are overlapping as illustrated below. Some grasses, notably the brome grass and cheats (*Bromus* spp.), are closed to near the top. This character needs careful examination for in some cases a closed sheath is easily split by rough handling.



Split



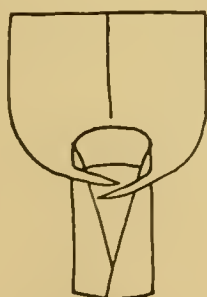
Split, margins overlapping



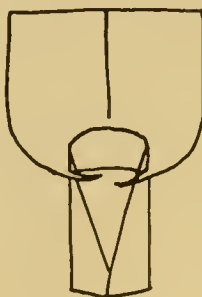
Closed

The surface of the sheath may be rough to the touch or more or less covered with hairs or it may be smooth (without roughness or hairs). Frequently we find sheaths with purple or reddish tints. These tints, except in a few cases, are not reliable as a means of identification. Where color is used the lowermost sheaths should be examined at or just below the soil surface. In some cases the margins of split sheaths are helpful in distinguishing one grass from another. Most grasses have margins that are thin and hyaline or paper-like while in some, one or both margins may be distinctly hairy.

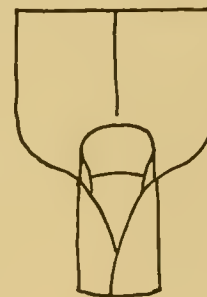
3. Auricles



Large



Small

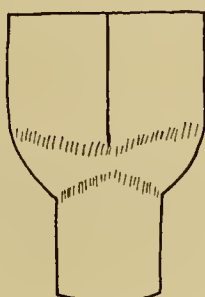


Absent

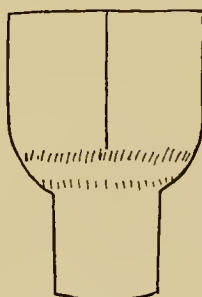
Auricles are claw-like appendages which project from the collar, one from each side. When present they may be large and conspicuous, as in barley, or small and slender as in the ryegrasses and quackgrass. The auricles of wheat and tall fescue generally are more or less hairy.

4. Collar

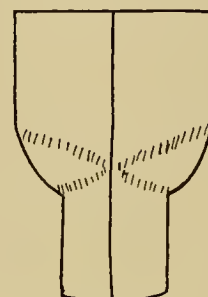
The collar is a band, generally much lighter in color, marking the division between the sheath and the blade. It may be a broad or narrow band continuous from one margin to the other or it may be divided by a darker green midrib. Broad collars, whether continuous or divided, are most



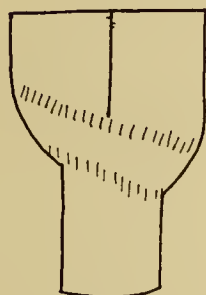
Broad



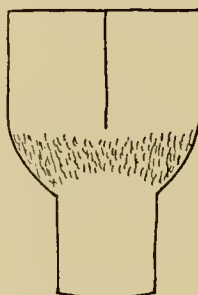
Narrow



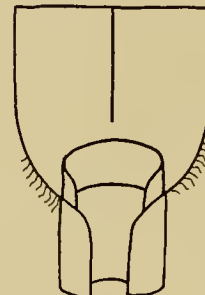
Divided



Oblique



Hairy



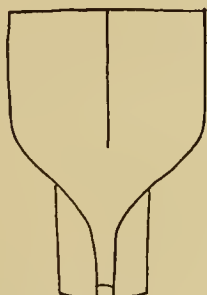
Margins hairy

generally narrow in the midrib area and may be said to resemble two letter V's placed point to point. The surface of the collar, viewed with the bottom of the blade upward, is generally smooth but may be rather uniformly hairy or have long or short hairs only on the margins. The hairs on the collar margins are sometimes conspicuously long or dense.

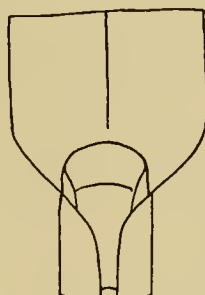
5. Ligule

The ligule is an upward-pointing growth found on the inside of the leaf at the junction of the blade and sheath. It may be a thin membrane or a fringe of hairs or may be absent as in barnyard

Ligule Types



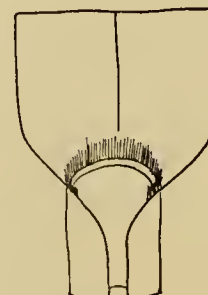
Absent



Membranous



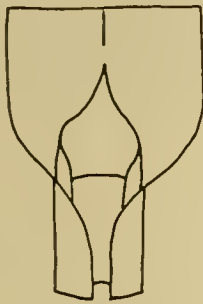
Fringe of hairs



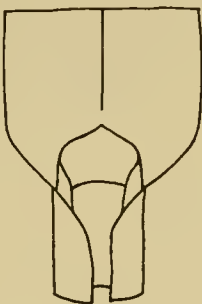
Fringe of hairs
fused at base

grass. A special type sometimes found is a fringe of hairs fused at base. This is essentially a fringe of relatively long hairs on a short membrane. Careful examination of this membrane will show that many or all of the hairs can be distinguished as continuing to the base but are apparently fused or cemented together. This could appear to be a short membrane that is long ciliate (see ligule margins below). To avoid confusion in this key those ligules where the membranous portion is much shorter than the fringe of hairs has been described as a “fringe of hairs fused at base”. Where the membranous portion is much longer than the hairs, the ligule is described as “membranous ciliate”.

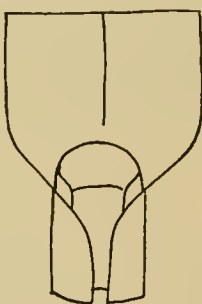
Ligule Shapes



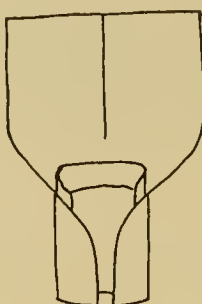
Acuminate



Acute



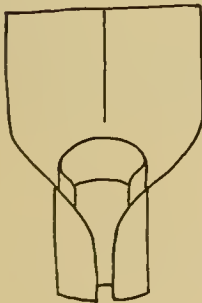
Rounded



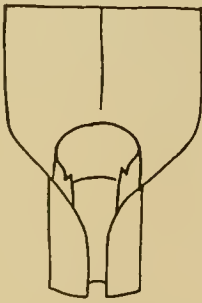
Truncate

The shape of the ligule (illustrated above) and the ligule margins (illustrated below) apply only to the membranous types. Both shape and margin in most species may vary considerably but in

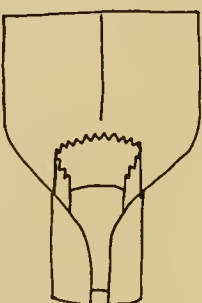
Ligule Margins



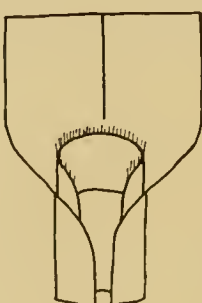
Entire



Notched



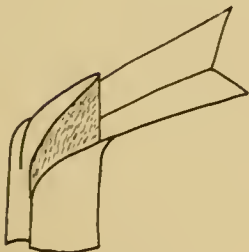
Toothed



Ciliate

some cases, as the notched margin in timothy, are quite helpful in identification. Margins of ligules often become split or frayed in older leaves, so care should be taken to examine only young fresh blades.

The length of the ligule may vary from minute (.2mm. long or less) to more than 10 mm. The outer surface of the ligule is usually smooth but careful examination of some ligules with a good magnifier will show them to be minutely hairy on the back. This appears to be a somewhat inconsistent character, or at least difficult to accurately determine and has not been used in the key.



Ligule hairy on back

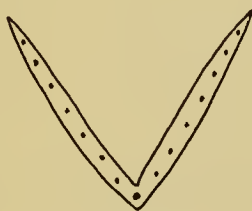
6. Blade

The blade is the upper, non-clasping part of the leaf above the collar and ligule. It is usually long and flat but sometimes narrow leaves are so tightly folded as to appear solid or bristle-like. Broad blades may be flat, V-shaped, rolled, or have both margins rolled inward. The width of the blades, although variable within a certain limit in a species or on a single plant, are of considerable value in separating many grasses. The shape of the blade is of considerable value in a few cases.

The blade surfaces and the blade margins may be smooth, rough or hairy. In some cases the veins are so prominent on the upper surface as to form ridges. On the lower surface, the midrib may be prominent and form a keel. The partially closed blade tip that is shaped like the prow of a boat is common to the bluegrasses and is valuable in identification. The shade of green color in the blade is so dependent on the conditions of moisture, fertility and light that it is not dependable as a character in identification. Some species, however, have a definite blue-green color (glaucous) and this characteristic can be used in distinguishing them.



Flat
Keeled below



V-shaped



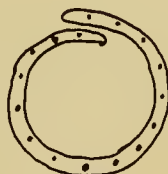
Folded



Bristle-like



Flat
Ridged above



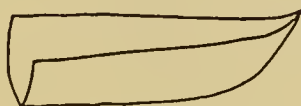
Rollled



Margins
Rollled in



Tapering to Tip



Boat-shaped Tip



Parallel-sided



Narrowed to Base

7. Rhizomes and Stolons

Grasses have fine fibrous root systems. Many grasses have a thickened, generally whitish, creeping underground stem or rhizome. These rhizomes send up new shoots from the nodes and enable the plant to spread vegetatively. Other grasses have prostrate, above-ground, creeping stems or stolons which also root at the nodes or tips. The presence or absence of rhizomes or stolons frequently is a great help in distinguishing one species from another.

8. Inflorescence

The common forms of grass inflorescence (flowering parts) are the spike (quackgrass), raceme (crabgrass) and panicle (redtop). The character of the inflorescence is not used as a basis of separation in this vegetative key. A simplified description of the inflorescence of each species is given, however, as an aid in establishing positive identification whenever inflorescence is present.

9. Geographical Range

The geographical range of the various grasses in the states of the Northeast is that given by Hitchcock (6) with such modifications as were indicated by the author's collections. The range given is meant to be only that of general occurrence and for most grasses would also include the area of the Northeast west of the state named. Some species may be occasionally found considerably north of their general range. Geographical range is not used as a point of separation of species in the key but in some cases may be valuable information to help in positive identification.

10. Where Found

Most grasses are found over a wide range of situations such as cultivated fields, meadows, open ground and waste places. Others, however, are found only in rather specific locations such as bogs, salt marshes and on dune sand. Where the conditions of growth are quite specific, it is a valuable characteristic that can be used in separating species.

USING THE KEY

Many grasses are highly variable in their vegetative characters. There may be great differences in the vegetative descriptions of the same species grown under different climatic conditions. Frequently there is considerable variation among plants growing close together. For this reason, when collecting a specimen for identification, it is well to gather plants from several different spots.

In using the key, a 10X magnifier is essential. A Pocket Comparator or other device for making fine measurements will also be very helpful.

Where separations are based on width of blade or length of ligule, reference is to the widest blades or the longest ligules (unless otherwise specified) present on the specimens.

The characters given in the key are arranged in pairs bearing the same number but different letters as 1a, 1b; or 12a, 12b. The two parts of any pair are opposing or partly opposing characters. No grass plant can fit both; every plant should fit one or the other.

With a given grass in hand read both parts of the first pair, "1a. Blade more than 3 mm. wide—1b. Blade less than 3 mm. wide." If this particular specimen has blades more than 3 mm. wide read next pair 4, as directed by the figure at the end of that line. If a ligule is present (4a) go next

to pair 5, if ligule is membranous (5b), go next to pair 9. Continue in this way to select the alternative which best agrees with the specimen in hand until reference is to a Group. Turn to this group and continue to a grass species. Check the specimen with the details of the description given under the species name and in the drawing at right (drawings are diagrammatic and not to scale). Where the inflorescence is present, the simplified description given may also be helpful in checking correct identification. In a few species geographical distribution and the information on occurrence may be of value.

IDENTIFICATION KEY

1a. Blade 3 mm. or less wide	2
1b. Blade more than 3 mm. wide	4
2a. Sheath distinctly flattened or compressed	<i>Group 1, page 9</i>
2b. Sheath not distinctly flattened	3
3a. Ligule .5 mm. or less long	<i>Group 2, page 12</i>
3b. Ligule more than .5 mm. long	<i>Group 3, page 16</i>
4a. Ligule present	5
4b. Ligule absent	<i>Group 4, page 20</i>
5a. Ligule membranous	9
5b. Ligule a fringe of hairs	6
6a. Ligule 1 mm. or less long	7
6b. Ligule more than 1 mm. long	8
7a. Blade 5 mm. or less wide	<i>Group 5, page 21</i>
7b. Blade more than 5 mm. wide	<i>Group 6, page 23</i>
8a. At least one sheath margin hairy	<i>Group 7, page 29</i>
8b. Neither sheath margin hairy	<i>Group 8, page 33</i>
9a. Sheath closed to near top	<i>Group 9, page 38</i>
9b. Sheath split at least part way	10
10a. Sheath distinctly flattened	11
10b. Sheath not distinctly flattened	14
11a. Ligule 1 mm. or less long	<i>Group 10, page 41</i>
11b. Ligule more than 1 mm. long	12
12a. Leaves rolled in bud-shoot	<i>Group 11, page 45</i>
12b. Leaves folded in bud-shoot	13
13a. Ligule 2 mm. or less long	<i>Group 12, page 48</i>
13b. Ligule more than 2 mm. long	<i>Group 13, page 50</i>
14a. Ligule 3 mm. or more long	15
14b. Ligule less than 3 mm. long	16
15a. Blade 10 mm. or less wide	<i>Group 14, page 52</i>
15b. Blade more than 10 mm. wide	<i>Group 15, page 55</i>
16a. Auricles present	<i>Group 16, page 59</i>
16b. Auricles absent	17
17a. Blade 10 mm. or less wide	18
17b. Blade more than 10 mm. wide	20
18a. Ligule 1 mm. or less long	<i>Group 17, page 62</i>
18b. Ligule more than 1 mm. long	19
19a. Sheath hairy at least at top or throat	<i>Group 18, page 65</i>
19b. Sheath not hairy	<i>Group 19, page 66</i>
20a. Ligule 2 mm. or less long	<i>Group 20, page 68</i>
20b. Ligule more than 2 mm. long	<i>Group 21, page 71</i>

GROUP 1

- 1a. Blade hairy above 2
 1b. Blade not hairy above 5

2a. Blade about 1 mm. wide



1. *Aristida dichotoma*—Poverty Grass

Leaves folded in bud-shoot; *sheath* distinctly flattened and keeled, smooth or sometimes sparsely long hairy, split; *auricles* absent; *collar* narrow, divided; *ligule* a minute fringe of hairs; *blade* about 1 mm. wide, rough and sparsely long hairy above, smooth below, margins rough. *Inflorescence*—few-flowered, narrow, terminal and axillary panicles. Common throughout. Dry open ground.

- 2b. Blade more than 1 mm. wide 3

- 3a. Collar hairy at least on margins 4

3b. Collar not hairy



2. *Festuca octoflora*—Six-weeks Fescue

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth or sometimes rough or short hairy, split with overlapping margins; *auricles* absent; *collar* narrow; *ligule* membranous, .2 to .3 mm. long, truncate, sometimes lacerate or ciliate; *blade* to 2 mm. wide, short hairy above and below and on margins. *Inflorescence*—a narrow panicle with short branches. New York south. Open sterile ground.

4a. Ligule about .2 mm. long



3. *Sporobolus clandestinus*—Scratch Dropseed

Leaves folded in bud-shoot; *sheath* distinctly flattened, dense long hairy or hairy at throat, split with overlapping margins; *auricles* absent; *collar* broad with a narrow band of hairs; *ligule* a fringe of hairs about .2 mm. long; *blade* about 3 mm. wide, long hairy above and below, margins rough. *Inflorescence*—a narrow contracted panicle. Connecticut south. Sandy fields.

4b. Ligule 2 to 3 mm. long



4. *Cynodon dactylon*—Bermuda Grass

Leaves rolled in bud-shoot; *sheath* loose, distinctly flattened, sparsely short hairy with a tuft of hairs at throat, split with overlapping margins; *auricles* absent; *collar* narrow, hairy on margins; *ligule* a fringe of hairs, 2 to 3 mm. long; *blade* 2 to 3 mm. wide, sparsely short hairy above, smooth below, margins rough. *Inflorescence*—4 or 5 digitate spikes. Maryland south. Common in fields and grasslands.



5a. Ligule more than 1 mm. long

5. Poa annua—Annual Bluegrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, generally split with overlapping margins; *auricles* absent; *collar* narrow to medium broad, divided; *ligule* membranous, mostly 1 to 2 mm. long, rounded to acute; *blade* 2 to 3 mm. wide, smooth above and below and on margins, blade-tip boat-shaped. *Inflorescence*—a small, open, few-branched panicle. Common throughout. Lawns, pastures, open ground and waste places.

5b. Ligule 1 mm. or less long 6

6a. Blade 2 mm. or less wide 7

6b. Blade more than 2 mm. wide 11



7a. Blade rolled, very narrow (about .5 mm. wide), bristle-like

6. Festuca capillata—Hair Fescue

Leaves folded in bud-shoot; *sheath* flattened, smooth, split; *auricles* absent; *collar* narrow, divided, indistinct; *ligule* membranous, .2 to .4 mm. long, truncate; *blade* bristle-like (about .5 mm. wide), smooth. *Inflorescence*—a very slender panicle. Throughout. Lawns and waste places.

7b. Blade not as above (1 mm. or more wide), may be bristle-like 8

8a. Ligule a fringe of hairs

7. Aristida oligantha—Prairie Three-awn Grass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided; *ligule* a fringe of hairs, about .2 mm. long; *blade* 1 to 2 mm. wide, rough and sometimes sparsely long hairy above, smooth below, margins rough. *Inflorescence*—a narrow, loosely flowered panicle. Massachusetts south. Open dry ground.

8b. Ligule membranous 9

9a. Plants densely tufted, base of stems not usually decumbent . . . 10

9b. Plants not densely tufted, base of stems usually decumbent

8. Festuca rubra—Red Fescue

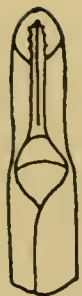
Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth or very short hairy, split; *auricles* absent; *collar* mostly broad; *ligule* membranous, .2 to .3 mm. long, truncate; *blade* about 2 mm. wide, smooth above and below, margins smooth or slightly rough. *Inflorescence*—a narrow, contracted panicle. Common throughout. Lawns, meadows and waste places.



10a. Plant pale bluish green

9. Festuca ovina—Sheep Fescue

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split; *auricles* absent; *collar* medium broad, divided, indistinct; *ligule* membranous, about .3 mm. long, rounded; *blade* 1 to 1.5 mm. wide, bristle-like, smooth above and below and on margins. *Inflorescence*—a narrow panicle, sometimes almost spike-like. Throughout. Occasionally cultivated.



10b. Plant dark green

10. Festuca rubra var. commutata—Chewings Fescue

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth or very short hairy, split; *auricles* absent; *collar* broad; *ligule* membranous, .2 to .4 mm. long; *blade* 1 to 2 mm. wide, smooth above and below and on margins. *Inflorescence*—a narrow contracted panicle. Cultivated for lawns.



11a. Blade tip boat-shaped

11. Poa pratensis—Kentucky Bluegrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided, may have fine hairs on margins; *ligule* membranous, mostly .2 to .3 mm. long but to .6 mm., truncate; *blade* 2 to 3 mm. wide, smooth to slightly rough above, smooth and keeled below, margins smooth to slightly rough or occasionally short hairy near base, tip boat-shaped. *Inflorescence*—an open, pyramidal panicle. Common throughout. Lawns, meadows, open ground and waste places.



11b. Blade tip not boat-shaped **12**

12a. Auricles present

12. Lolium perenne—Perennial Ryegrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* small, slender; *collar* broad, divided, indistinct; *ligule* membranous, .4 to .6 mm. long, truncate; *blade* 2 to 3 mm. wide, smooth above and on margins, smooth and glossy below. *Inflorescence*—long, narrow, flat spikes with unawned spikelets placed edge to rachis. Common throughout. Cultivated.



12b. Auricles absent

13. Muhlenbergia schreberi—Nimblewill

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth, split; *auricles* absent; *collar* broad, hairy on margins; *ligule* membranous, .4 to .6 mm. long, rounded; *blade* 2 to 2.5 mm. wide, smooth above and hairy near base, smooth below, margins rough and sparsely long hairy. *Inflorescence*—numerous, slender panicles. New Hampshire south. Lawns, pastures and waste places.



GROUP 2

- 1a. Blade hairy above at least near base 2
- 1b. Blade not hairy above 7
- 2a. Collar hairy at least on margins 5
- 2b. Collar not hairy 3

- 3a. Blade flat, 2 to 3 mm. wide 4
- 3b. Blade rolled and bristle-like, to 1.5 mm. wide

14. *Aristida purpurascens*—Arrow-feather

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins; *auricles* absent; *collar* broad; *ligule* membranous, to .3 mm. long, truncate, short ciliate; *blade* rolled and bristle-like, to 1.5 mm. wide, smooth above with a few hairs near base, smooth below, margins rough. *Inflorescence*—a narrow, lax and nodding panicle, one-third to half entire length of plant. Massachusetts south. Dry sandy soil.



4a. Blade short hairy above

15. *Festuca myuros*—Rattail Fescue

Leaves folded in bud-shoot; *sheath* round, smooth split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, .2 to .4 mm. long, truncate; *blade* 2 to 3 mm. wide, short hairy above, smooth below and on margins. *Inflorescence*—a narrow panicle with appressed branches. Coastal Plain, Massachusetts south. Open ground.



4b. Blade rough above, hairy behind ligule

16. *Muhlenbergia schreberi*—Nimblewill

Leaves rolled in bud-shoot; *sheath* round, sharply keeled, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, about .2 mm. long, truncate; *blade* 2 to 3 mm. wide, rough above and hairy behind ligule, smooth below, margins slightly rough. *Inflorescence*—numerous, slender panicles. New Hampshire south. Lawns, pastures and waste places.



- 5a. Sheath hairy at least near top 6

5b. Sheath smooth

17. *Sporobolus asper*—Tall Dropseed

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins; *auricles* absent; *collar* broad, sparsely hairy on margins; *ligule* a fringe of hairs, .2 to .3 mm. long; *blade* about 2 mm. wide, sparse long hairy near base above, smooth below, margins rough. *Inflorescence*—a pale or whitish or purplish, contracted, spike-like panicle. Vermont south. Sandy meadows.



6a. Plant tufted



18. Danthonia spicata—Poverty Oatgrass

Leaves folded in bud-shoot; *sheath* round, usually long hairy with a tuft of long hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, generally with long hairs on margins; *ligule* a fringe of hairs, .2 to .4 mm. long; *blade* .2 to .3 mm. wide, short hairy above, rough below at least near tip, margins rough or short hairy. *Inflorescence*—a narrow panicle with stiff, short branches bearing one spikelet. Common throughout. Dry and sterile or rocky soil.

6b. Plants with slender creeping rhizomes or stolons

19. Zoysia matrella—Japanese Lawngrass

Zoysia spp.—Emerald Zoysia



Leaves rolled in bud-shoot; *sheath* round or somewhat flattened, smooth but mostly with a tuft of hairs at throat, split with overlapping margins; *auricles* absent; *collar* hairy at least on margins; *ligule* a fringe of hairs about .2 mm. long; *blade* 2 to 3 mm. wide, hairy above at least near base, smooth below, margins smooth to rough. *Inflorescence*—short, terminal, spike-like. Maryland and Delaware south. Cultivated for lawns.

7a. Ligule membranous 13

7b. Ligule a fringe of hairs 8

8a. Plants extensively creeping by strong, flat stolons

20. Cynodon spp.—U 3 Bermuda Grass



Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad to narrow, sometimes with a few long hairs on margins; *ligule* a fringe of hairs, .2 to .3 mm. long; *blade* 1.5 to 2 mm. wide, smooth to somewhat rough above, smooth below at least near base, margins rough. *Inflorescence*—4 or 5 digitate spikes. Maryland and Delaware south. Cultivated.

8b. Plants not creeping by stolons 9

9a. Collar hairy on margins 11

9b. Collar not hairy on margins 10

10a. Blade bristle-like, 1 to 1.5 mm. wide



21. Aristida dichotoma—Poverty Grass

Leaves folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided; *ligule* a fringe of hairs about .4 mm. long; *blade* 1 to 1.5 mm. wide, bristle-like, rough above, smooth below, margins slightly rough. *Inflorescence*—few-flowered, narrow, terminal and axillary panicles. Common throughout. Dry open ground.



10b. Blade flat, 2 to 3 mm. wide

22. Eragrostis pectinacca—Pink Lovegrass

Leaves rolled in bud-shoot; *sheath* round, smooth, sometimes long hairy at top, split with overlapping margins; *auricles* absent; *collar* medium broad to narrow, sometimes divided; *ligule* a fringe of hairs, .2 to .4 mm. long; *blade* 2 to 3 mm. wide, smooth to rough above, smooth below, margins at least slightly rough. *Inflorescence*—a delicate, open panicle. Throughout. Fields, open ground and waste places.

11a. Sheath not hairy 12

11b. Sheath with a tuft of hairs at throat



23. Danthonia spicata—Poverty Oatgrass

Leaves folded in bud-shoot; *sheath* round to somewhat flattened, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, indistinct, hairy on margins; *ligule* a fringe of hairs, .2 to .3 mm. long; *blade* 2 to 3 mm. wide, rough above, smooth below, margins rough and hyaline. *Inflorescence*—a narrow panicle with stiff, short branches bearing one spikelet. Common throughout. Dry and sterile or rocky soil.

12a. Collar narrow, continuous

24. Eragrostis poaeoides—Low Lovegrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, hairy on margins; *ligule* a fringe of hairs about .2 mm. long; *blade* 1.5 to 2.5 mm. wide, smooth above, smooth and glossy below, margins rough. *Inflorescence*—an erect, open panicle. Throughout, not common. Waste places.



12b. Collar broad, divided

25. Sporobolus vaginiflorus—Dropseed

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided, hairy on margins; *ligule* a minute fringe of hairs; *blade* 1.5 to 2.5 mm. wide, smooth above and below, margins slightly rough. *Inflorescence*—a short, slender panicle. Throughout. Sandy soil or open waste ground.



13a. Low plants growing in dense colonies at edges of brackish marshes and streams

26. Distichlis spicata—Seashore Saltgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, may be hairy on margins; *ligule* membranous, about .2 mm. long; *blade* 2 to 3 mm. wide, smooth above and below and on margins, frequently bristle-like. *Inflorescence*—a pale or greenish, short, condensed panicle. Maine south. Seashores, forming dense colonies.



13b. Plants not growing as above 14

14a. Sheath smooth 16

14b. Sheath short hairy 15

15a. Leaves glaucous, blue-green; plant densely tufted



27. *Festuca ovina*—Sheep Fescue

Leaves folded in bud-shoot; *sheath* round, short hairy, split with overlapping margins; *auricles* absent; *collar* narrow, indistinct; *ligule* membranous, to .5 mm. long, truncate; *blade* 1 to 2 mm. wide, bristle-like, rough above, smooth to rough below, margins smooth. *Inflorescence*—a narrow panicle, sometimes almost spike-like. Throughout. Occasionally cultivated.



15b. Leaves not glaucous, dark green; plant not densely tufted

28. *Festuca rubra*—Red Fescue

Leaves folded in bud-shoot; *sheath* round, short hairy, split part-way only; *auricles* absent; *collar* narrow, indistinct; *ligule* membranous, about .5 mm. long, truncate; *blade* 1.5 to 3 mm. wide, bristle-like, smooth above and below and on margins. *Inflorescence*—a narrow, contracted panicle. Common throughout. Lawns, meadows and waste places.

16a. Collar narrow, leaves mostly bristle-like 18

16b. Collar medium broad, leaves flat 17

17a. Collar hairy



29. *Sporobolus clandestinus*—Scratch Dropseed

Leaves folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, hairy with a few long hairs on margins; *ligule* membranous, minute; *blade* to 3 mm. wide, rough above, smooth and glossy below, margins rough and hyaline. *Inflorescence*—a narrow, contracted panicle. Connecticut south. Sandy fields.

17b. Collar not hairy



30. *Agrostis tenuis*—Colonial Bent

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, may be divided; *ligule* membranous, to .4 mm. long, truncate; *blade* 1 to 3 mm. wide, flat, smooth to rough above, smooth below at least near base, margins rough and hyaline. *Inflorescence*—an open, delicate panicle. Common throughout. Pastures, lawns and waste places.



18a. Basal sheaths reddish, shining, perennials

31. Festuca rubra—Red Fescue

Leaves folded in bud-shoot; *sheath* mostly somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, generally divided; *ligule* membranous, .2 to .5 mm. long, truncate; *blade* 1 to 3 mm. wide, generally bristle-like, smooth to rough above and on margins, smooth below. *Inflorescence*—a narrow, contracted panicle. Common throughout. Lawns, meadows and waste places.

18b. Basal sheaths not reddish, annuals 19

19a. Blade margins smooth



32. Festuca myuros—Rattail Fescue

Leaves folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, may be divided; *ligule* membranous, about .2 mm. long, truncate; *blade* 1 to 2 mm. wide, bristle-like, smooth above and below and on margins. *Inflorescence*—a narrow panicle with appressed branches. Coastal Plain, Massachusetts south. Open ground.

19b. Blade margins at least slightly rough



33. Festuca octoflora—Six-weeks Fescue

Leaves folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, .2 to .4 mm. long, truncate; *blade* 1 to 2 mm. wide, bristle-like, smooth above and below, margins rough to slightly rough. *Inflorescence*—a narrow panicle with short branches. New York south. Open, sterile ground.

GROUP 3

1a. Collar hairy at least on margins 2

1b. Collar not hairy 5

2a. Sheath hairy at least at top or throat 3

2b. Sheath not hairy

34. Eragrostis poaeoides—Low Lovegrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins; *auricles* absent; *collar* broad, hairy near margins, margins hairy; *ligule* a fringe of hairs, 1 to 1.5 mm. long; *blade* to 3 mm. wide, smooth above and below, margins rough. *Inflorescence*—an erect, open panicle. Throughout, not common. Waste places.



3a. Ligule to 1 mm. or more long 4



3b. Ligule not more than .6 mm. long

35. Eragrostis pectinacea—Pink Lovegrass

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, hairy at top or throat, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, hairy on margins; *ligule* a fringe of hairs, about .6 mm. long; *blade* to 3 mm. wide, rough above, smooth below and keeled near base, margins rough and hyaline. *Inflorescence*—a delicate, open panicle. Throughout. Fields, open ground and waste places.

4a. Sheath closed to near top



36. Bromus mollis—Soft Chess

Leaves rolled in bud-shoot; *sheath* round, soft dense long hairy, closed to near top; *auricles* absent; *collar* narrow, divided, hairy, margins hairy; *ligule* membranous, 1.2 to 1.7 mm. long, rounded, toothed; *blade* to 3 mm. wide, long white hairy above, long hairy below, margins rough and long hairy. *Inflorescence*—an erect, contracted crowded panicle. Throughout, not common. Waste places and cultivated soil.

4b. Sheath split to base



37. Danthonia spicata—Poverty Oatgrass

Leaves folded in bud-shoot; *sheath* round, long hairy, split; *auricles* absent; *collar* narrow, often indistinct, long hairy on margins; *ligule* a fringe of hairs, to 1.2 mm. long; *blade* 2 to 3 mm. wide, smooth or sparsely long hairy above and below, sometimes glossy below, margins at least slightly rough. *Inflorescence*—a narrow panicle with stiff, short branches bearing one spikelet. Common throughout. Dry and sterile or rocky soil.

5a. Ligule 1 mm. or less long 6

5b. Ligule more than 1 mm. long 12

6a. Ligule membranous 7

6b. Ligule a fringe of hairs

38. Spartina patens—Salt-meadow Cordgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad; *ligule* a fringe of hairs, .4 to 1 mm. long; *blade* 2 to 3 mm. wide, bristle-like, rough above and on margins, smooth below. *Inflorescence*—2 to several comb-like spikes forming an appressed to open panicle. Maine south. Brackish marshes and beach sand along coast.



7a. Blade 1 to 2 mm. wide 8

7b. Blade 2 to 3 mm. wide 11

8a. Blade flat 9

9a. Blade margins smooth

39. *Agrostis palustris*—Creeping Bent

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, .6 to .8 mm. long, rounded, toothed; *blade* about 1 mm. wide, flat, smooth above and below and on margins. *Inflorescence*—a narrow, dense, pale or purple panicle. Marshes along coast, also cultivated for putting green.



9b. Blade margins rough

40. *Agrostis canina*—Velvet Bent

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad; *ligule* membranous, .4 to .8 mm. long, rounded to acute; *blade* about 1 mm. wide, flat, smooth above and below, margins rough and hyaline. *Inflorescence*—a loose, spreading panicle. Maine to Delaware. Meadows and open ground. Cultivated for putting greens.



10a. Lower sheaths slightly longer than the internodes

41. *Festuca myuros*—Rattail Fescue

Leaves folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad; *ligule* membranous, .4 to .8 mm. long, truncate, sometimes toothed; *blade* 1 to 2 mm. wide, bristle-like, smooth or rough or very short hairy above, smooth below and on margins. *Inflorescence*—a narrow panicle with appressed branches. Coastal Plain. Massachusetts south. Open ground.



10b. Lower sheaths shorter than the internodes

42. *Festuca octoflora*—Six-weeks Fescue

Leaves folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, .4 to .8 mm. long, truncate; *blade* 1 to 2 mm. wide, bristle-like, smooth above or sometimes short hairy, smooth below, margins smooth to slightly rough. *Inflorescence*—a narrow panicle with short branches. New York south. Open sterile ground.



11a. Sheath hairy

43. *Digitaria filiformis*—Slender Crabgrass

Leaves rolled in bud-shoot; *sheath* round, long hairy (upper smooth), split; *auricles* absent; *collar* narrow, divided; *ligule* membranous, .6 to 1 mm. long, truncate; *blade* 2 to 3 mm. wide, smooth above and below, margins smooth and hyaline. *Inflorescence*—1 to 5 digitate, spike-like branches. New Hampshire south. Sandy fields and sterile open ground.





11b. Sheath smooth

44. *Agrostis tenuis*—Colonial Bent

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, divided; *ligule* membranous, .4 to 1 mm. long, truncate; *blade* 2 to 3 mm. wide, smooth to rough above and below, margins rough. *Inflorescence*—an open, delicate panicle. Common throughout. Pastures, lawns and waste places.

12a. Ligule more than 3 mm. long 13

12b. Ligule 3 mm. or less long 14

13a. Blade rough above and below

45. *Agrostis stolonifera*—Meadow Bent

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided, indistinct; *ligule* membranous, 3 to 4.5 mm. acute; *blade* about 1.5 mm. wide, bristle-like, rough above and below and on margins. *Inflorescence*—a pale or purple, somewhat open panicle. Throughout. Moist, grassy places.



13b. Blade smooth above and below

46. *Alopecurus carolinianus*—Field Foxtail

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided; *ligule* membranous, 4 to 5 mm. long, acuminate; *blade* 2 to 3 mm. wide, smooth above and below, margins rough. *Inflorescence*—soft, dense, cylindrical, spike-like. Long Island south. Moist ground and wet places.



14a. Blades thread-like

47. *Deschampsia flexuosa*—Crinkled Hairgrass

Leaves folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, 1.4 to 2 mm. long, rounded; *blade* rolled, thread-like, about .4 mm. wide, smooth. *Inflorescence*—a loose, open, nodding panicle with capillary branches. Throughout. Dry or rocky places.



14b. Blades not thread-like 15

15a. Plants spreading by stolons

48. *Agrostis palustris*—Creeping Bent

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad; *ligule* membranous, 1 to 2 mm. long, acute; *blade* 2 to 3 mm. wide, smooth to rough above and below and on margins. *Inflorescence*—a narrow, dense, pale or purple panicle. Marshes along coast. Also cultivated for putting greens.



15b. Plants not spreading by stolons 16

16a. Collar narrow, divided

49. *Agrostis hiemalis*—Spring Hairgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided, sometimes indistinct; *ligule* membranous, 1 to 3 mm. long, rounded to acute; *blade* 1 to 3 mm. wide, smooth to rough above and below, margins at least slightly rough. *Inflorescence*—a purplish, spreading, slender-branched panicle. Massachusetts south. Open ground, fields and waste places.



16b. Collar broad, not divided

50. *Eragrostis capillaris*—Lacegrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad; *ligule* membranous, 1 to 2 mm. long, rounded, lacerate or toothed; *blade* 2 to 3 mm. wide, rough above and below and on margins. *Inflorescence*—an open, diffuse panicle two-thirds entire height of plant. Throughout. Dry, open ground and fields.

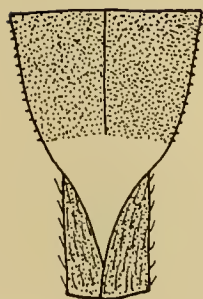


GROUP 4

1a. Sheath long hairy, at least at top or throat

51. *Echinochloa walteri*—Walter's Millet

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, rough and long hairy at least at top or throat, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad; *ligule* absent; *blade* 10 to 20 mm. wide (sometimes to 30 mm.), rough above and below at least near tip, margins rough to very rough and hyaline. *Inflorescence*—a compact panicle with short, bristly, densely flowered, spike-like branches. Coastal Plain. Massachusetts south. Wet places, often in shallow water or brackish marshes.

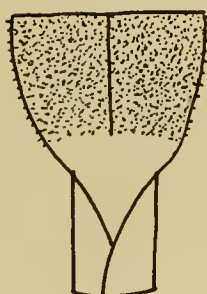


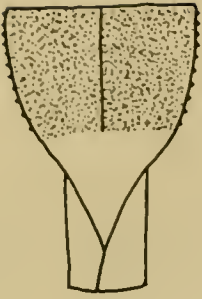
1b. Sheath not hairy 2

2a. A common weed

52. *Echinochloa crusgalli*—Barnyard Grass

Leaves rolled in bud-shoot; *sheath* somewhat to distinctly flattened, mostly smooth but occasionally somewhat rough or short hairy, split to base with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad; *ligule* absent; *blade* mostly 10 to 20 mm. wide (occasionally to 30 mm.), generally rough above at least near tip, margins rough. *Inflorescence*—a compact panicle with short, densely flowered, spike-like branches. Throughout. Moist, open ground, fields and ditches.





2b. A cultivated annual

53. Echinochloa crusgalli var. frumentacea—Japanese Millet

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* absent; *blade* to 30 mm. wide, rough above and below at least near tip, margins very rough and hyaline. *Inflorescence*—a compact panicle with short, densely flowered, spike-like branches. Occasionally cultivated as a forage grass.

GROUP 5

1a. Plant with creeping rhizomes or stolons 2

1b. Plant without creeping rhizomes or stolons 4

2a. Blade rolled and bristle-like

54. Spartina patens—Salt-meadow Cordgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad; *ligule* a fringe of hairs, .4 to 1 mm. long; *blade* 2 to 4 mm. wide, bristle-like, smooth to rough above, smooth below, margins smooth to rough. *Inflorescence*—2 to several comb-like spikes forming an appressed to open panicle. Maine south. Brackish marshes and beach sand along coast.

2b. Blade not rolled and bristle-like 3

3a. Plant with creeping rhizomes and strong flat stolons

55. Cynodon dactylon—Bermuda Grass

Leaves rolled in bud-shoot; *sheath* round to distinctly flattened, mostly smooth but may be short hairy or have a tuft of hairs at throat, split with margins hyaline and mostly overlapping; *auricles* absent; *collar* narrow to broad, hairy at least on margins; *ligule* a fringe of hairs, mostly .2 to .4 mm. long (may be longer); *blade* 2 to 5 mm. wide, smooth to rough or short hairy above but mostly with at least a few hairs near base, smooth to rough or short hairy below, margins rough and hyaline. *Inflorescence*—4 or 5 digitate spikes. Maryland south. Common in fields and grasslands.

3b. Plants with creeping rhizomes but without stolons

56. Zoysia japonica—Meyer Zoysia

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth but may have a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* mostly broad, hairy at least on margins; *ligule* a fringe of hairs, to .2 mm. long; *blade* 2 to 5 mm. wide, smooth or occasionally short hairy above with at least a few long hairs near base, smooth below, margins smooth to rough and occasionally long hairy near base. *Inflorescence*—short, terminal, spike-like. Maryland and Delaware south. Cultivated for lawns.

- 4a. Sheath hairy at least at top or base 5
 4b. Sheath not hairy 7

5a. Sheath distinctly flattened

57. *Cenchrus pauciflorus*—Field Sandbur

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, hairy on margins; *ligule* a fringe of hairs, .6 to 1 mm. long; *blade* 3 to 5 mm. wide, rough above, smooth near base and rough near tip below, margins slightly rough to rough and hyaline. *Inflorescence*—a nearly round, hairy bur with sharp spines. Throughout. Sandy open ground.

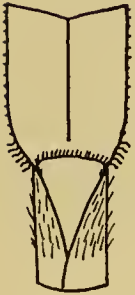


5b. Sheath not distinctly flattened 6

6a. Blade generally rough above

58. *Danthonia spicata*—Poverty Oatgrass

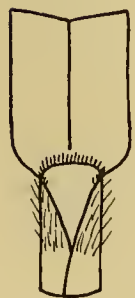
Leaves folded in bud-shoot; *sheath* round to somewhat flattened, hairy at least at top or base, split with overlapping hyaline margins; *auricles* absent; *collar* mostly narrow and hairy at least on margins; *ligule* a fringe of hairs, mostly .2 to .6 mm. long (occasionally to 1 mm.), sometimes with longer hairs to 3 mm. long; *blade* 3 to 5 mm. wide, smooth to rough above, mostly smooth and glossy below but occasionally short hairy, margins rough and hyaline. *Inflorescence*—a narrow panicle with stiff, short branches bearing one spikelet. Common throughout. Sandy and sterile or rocky soil.



6b. Blade generally smooth above

59. *Danthonia compressa*—Mountain Oatgrass

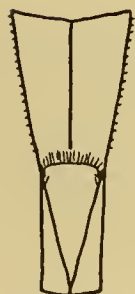
Leaves folded in bud-shoot; *sheath* round to somewhat flattened, hairy at least at top, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, may be hairy at least on margins; *ligule* a fringe of hairs, .2 to .4 mm. long but occasionally with longer hairs; *blade* 2 to 5 mm. wide, mostly smooth above at least near base but may be long hairy, smooth to occasionally long hairy below, margins smooth to rough and somewhat long hairy. *Inflorescence*—a narrow panicle with stiff, short branches bearing 2 or 3 spikelets. Throughout. Meadows and open woods.



7a. Blade long hairy below at least near base

60. *Danthonia sericea*—Downy Oatgrass

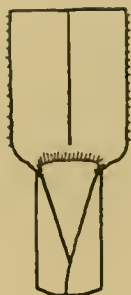
Leaves folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be hairy; *ligule* a fringe of hairs, .6 to 1 mm. long; *blade* 3 to 5 mm. wide, smooth to rough above, long hairy below at least near base, margins rough or long hairy. *Inflorescence*—a narrow panicle with stiff, short branches bearing 2 to 6 spikelets. Massachusetts south, chiefly Coastal Plain. Sand barrens.



7b. Blade smooth below

61. Eragrostis pectinacea—Pink Lovegrass

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, may be hairy on margins; *ligule* a fringe of hairs, .2 to .6 mm. long; *blade* 3 to 5 mm. wide, smooth to rough above, smooth and sometimes glossy below, margins rough and hyaline. *Inflorescence*—a delicate, open panicle. Throughout. Fields, open ground and waste places.



GROUP 6

1a. Collar not hairy **2**

1b. Collar hairy, at least on margins **9**

2a. Sheath hairy, at least at top or throat **3**

2b. Sheath smooth **6**

3a. Blade margins at least sparse hairy **4**

3b. Blade margins not hairy

62. Eragrostis capillaris—Lacegrass

Leaves rolled in bud-shoot; *sheath* slightly flattened, hairy at top at least near margins, split with hyaline margins; *auricles* absent; *collar* medium broad; *ligule* a fringe of hairs, about .2 mm. long; *blade* to 8 mm. wide, rough above and hairy near base, smooth below, margins rough. *Inflorescence*—an open diffuse panicle two-thirds entire height of plant. Throughout. Dry open ground and fields.

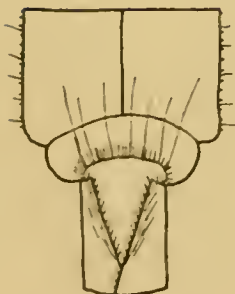


4a. Blade hairy above **5**

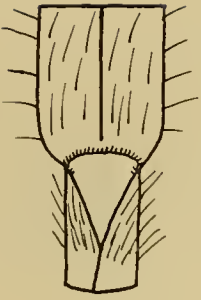
4b. Blade smooth above

63. Phragmites communis—Common Reed

Leaves rolled in bud-shoot; *sheath* round, smooth and hairy at throat, split with margins hairy; *auricles* absent; *collar* broad; *ligule* a fringe of hairs, about 1 mm. long with scattered hairs to as much as 6 to 7 mm. long, fused at base; *blade* to 25 mm. wide, smooth above and below, margins rough and sparsely short hairy. *Inflorescence*—a large, densely flowered, tawny or purple panicle. South to Maryland. Mostly wet land and marshes.



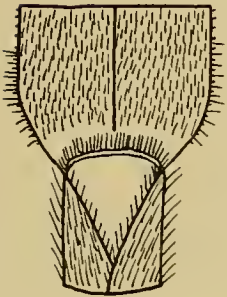
5a. Sheath margins hyaline



64. Eragrostis spectabilis—Purple Lovegrass

Leaves rolled in bud-shoot; *sheath* round, smooth with upper half long hairy, split with overlapping hyaline margins; *auricles* absent; *collar* broad; *ligule* a minute fringe of hairs; *blade* 5 to 8 mm. wide, long sparse hairy above, smooth below, margins smooth and sparsely long hairy near base. *Inflorescence*—a diffuse, bright purple panicle two-thirds entire height of plant. Throughout. Sandy soil.

5b. Sheath margins hairy



65. Panicum capillare—Witchgrass

Leaves rolled in bud-shoot; *sheath* somewhat flattened, stiff long hairy, split with overlapping margins hairy; *auricles* absent; *collar* narrow; *ligule* a fringe of hairs, about 1 mm. long, fused at base; *blade* to 17 mm. wide, short hairy above and below, margins rough and short hairy near base. *Inflorescence*—a very diffuse, densely flowered panicle, about half entire height of plant. Throughout. Cultivated fields, open ground and waste places.

6a. Plants with large creeping rhizomes 7

6b. Plants without creeping rhizomes

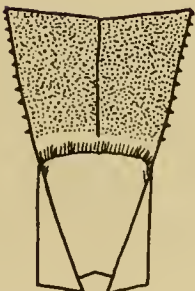


66. Setaria lutescens—Yellow Foxtail

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad; *ligule* a fringe of hairs, about 1 mm. long, fused at base; *blade* to 12 mm. wide, long hairy near base above, smooth to somewhat rough below, margins smooth to rough. *Inflorescence*—dense, bristly, cylindrical, yellow, erect, spike-like. Common throughout. Cultivated soil and waste places.

7a. Sheath round 8

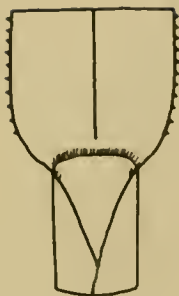
7b. Sheath distinctly flattened



67. Tripsacum dactyloides—Eastern Gamagrass

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping margins; *auricles* absent; *collar* narrow to broad, sometimes divided; *ligule* a fringe of hairs, .4 to 1 mm. long, sometimes fused at base; *blade* 20 to 25 mm. wide, rough above and below at least near tip, margins very rough. *Inflorescence*—1 to 3 terminal, unisexual spikes. Massachusetts south. Moist places and banks near water.

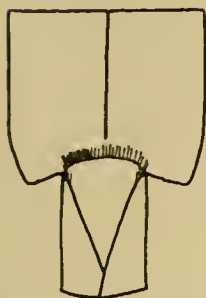
8a. Blade margin very rough



68. *Spartina pectinata*—Prairie Cordgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* a fringe of hairs, .4 to .6 mm. long; *blade* 8 to 15 mm. wide, smooth near base and rough near tip above, margins very rough. *Inflorescence*—a series of comb-like spikes forming an appressed panicle. Throughout. Fresh water marshes.

8b. Blade margin smooth



69. *Panicum hemitomen*—Maidencane

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent, *collar* broad; *ligule* a fringe of hairs, .8 to 1 mm. long; *blade* 10 to 20 mm. wide, smooth above and below, margins smooth and hyaline. *Inflorescence*—a narrow panicle with erect, distant branches. New Jersey south on Coastal Plain. Moist soil, often in water.

9a. Blade hairy above, at least near base 16

9b. Blade not hairy above 10

10a. Ligule more than .5 mm. long 12

10b. Ligule less than .5 mm. long 11

11a. Sheath distinctly flattened



70. *Uniola laxa*—Slender Uniola

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth and hairy at top, split with overlapping hyaline margins; *auricles* absent; *collar* broad, hairy behind ligule; *ligule* a fringe of hairs, about .4 mm. long; *blade* 4 to 7 mm. wide, rough above, smooth and keeled below, margins rough. *Inflorescence*—a slender, nodding panicle. Coastal Plain, Long Island south. Moist shady places.

11b. Sheath round to somewhat flattened



71. *Eragrostis hirsuta* var. *laevivaginata*—Smooth Lovegrass

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, mostly with a tuft of hairs at throat, split with margins hyaline or one hairy; *auricles* absent; *collar* broad, hairy at least on margins; *ligule* a fringe of hairs, .2 to .4 mm. long; *blade* 5 to 10 mm. wide (occasionally wider), smooth above and below, margins rough. *Inflorescence*—a diffuse panicle more than one-half entire height of plant. Maryland south. Dry soil.

12a. Blade not more than 10 mm. wide 13

12b. Blade usually much more than 10 mm. wide 15

13a. Plants spreading by stolons

72. *Cynodon dactylon*—Bermuda Grass

Leaves rolled in bud-shoot; *sheath* round, smooth, hairy at throat, split with hyaline margins; *auricles* absent; *collar* broad, hairy on margins; *ligule* a fringe of hairs, .4 to .6 mm. long, fused at base; *blade* 5 to 6 mm. wide, rough above, smooth near base and rough near tip below, margins rough and hyaline. *Inflorescence*—4 or 5 digitate spikes. Maryland south. Common in fields and grasslands.

13b. Plants not spreading by stolons 14

14a. Sheath margins hyaline

73. *Eragrostis cilianensis*—Stinkgrass

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth and occasionally hairy at throat, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, hairy or hairy on margins; *ligule* a fringe of hairs, .4 to 1 mm. long; *blade* 5 to 10 mm. wide, at least slightly rough above, glossy below and smooth at least near base, margins at least somewhat rough. *Inflorescence*—an erect, rather condensed, dark gray-green to tawny panicle. Throughout. Cultivated ground, fields and waste places.

14b. Sheath margins hairy

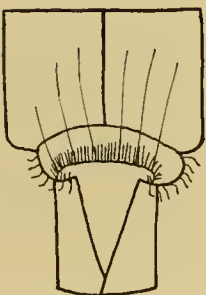
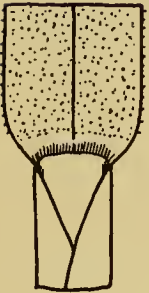
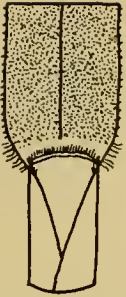
74. *Setaria viridis*—Green Foxtail

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping margins hairy; *auricles* absent; *collar* broad, divided, hairy at least on margins; *ligule* a fringe of hairs, .8 to 1 mm. long; *blade* 5 to 10 mm. wide, rough above, smooth to slightly rough and keeled below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, green or purplish, erect, spike-like. Common throughout. Cultivated soil and waste places.

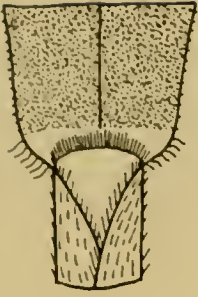
15a. Plants with large creeping rhizomes

75. *Phragmites communis*—Common Reed

Leaves rolled in bud-shoot; *sheath* round, smooth to somewhat rough or sparsely short hairy or hairy at top, split with overlapping scarious margins; *auricles* absent; *collar* narrow to broad, hairy at least on margins; *ligule* a fringe of hairs, .6 to 1 mm. long, usually with a few to 6 to 12 mm. long; *blade* 15 to as much as 50 mm. wide, smooth above and below, margins smooth to rough. *Inflorescence*—a large, densely flowered, tawny or purple panicle. South to Maryland. Mostly wet land and marshes.



15b. Plant without creeping rhizomes



76. *Setaria italica*—Foxtail Millet

Leaves rolled in bud-shoot; *sheath* round, at least sparsely short hairy, split with overlapping hairy margins; *auricles* absent; *collar* medium broad to broad, hairy and hairy on margin; *ligule* a fringe of hairs, .6 to 1 mm. long, sometimes fused at base; *blade* 12 to 20 mm. wide, rough above, smooth below at least near base, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, yellowish or purplish, spike-like. Cultivated for forage.

16a. Sheath margins hairy (at least one) 17

16b. Sheath margins hyaline 19

17a. Ligule less than .5 mm. long

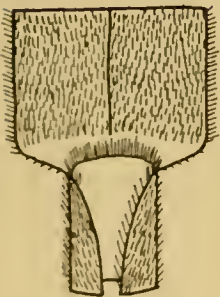


77. *Eragrostis hirsuta* var. *laevivaginata*—Smooth Lovegrass

Leaves rolled in bud-shoot; *sheath* round, smooth with a tuft of hairs at throat, split with one margin hyaline and one hairy; *auricles* absent; *collar* broad, ring of hairs at base; *ligule* a fringe of hairs, .3 to .4 mm. long, fused at base; *blade* 8 to 12 mm. wide, smooth above with a few long hairs near base, smooth and glossy below, margins rough. *Inflorescence*—a diffuse panicle more than one-half entire height of plant. Maryland south. Dry soil.

17b. Ligule about 1 mm. long 18

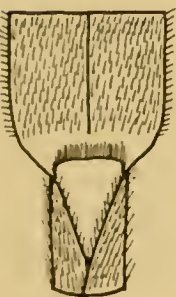
18a. Plants with a bare sticky ring just below node



78. *Panicum scoparium*—Velvety Panicum

Leaves rolled in bud-shoot; *sheath* round, dense velvety white hairy, split with at least one margin hairy; *auricles* absent; *collar* narrow to broad, dense white hairy; *ligule* a fringe of hairs, about 1 mm. long; *blade* 15 to 25 mm. wide, velvety short hairy above and below, margins short hairy. *Inflorescence*—an open, many branched panicle with sticky blotches on axis and branches. Massachusetts south. Wet or damp soil.

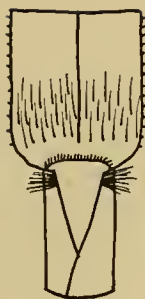
18b. Plants without bare ring below nodes



79. *Panicum capillare*—Witchgrass

Leaves rolled in bud-shoot; *sheath* somewhat flattened, long stiff white hairy, split with overlapping hairy margins; *auricles* absent; *collar* narrow, hairy; *ligule* a fringe of hairs, about 1 mm. long; *blade* 10 to 15 mm. wide, short hairy above and below, keeled below, margins rough and short hairy. *Inflorescence*—a very diffuse, densely flowered panicle, about half entire height of plant. Throughout. Cultivated fields, open ground and waste places.

19a. Ligule about .2 mm. long



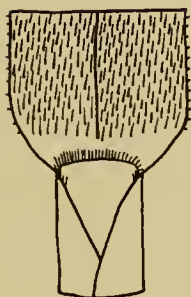
80. Eragrostis spectabilis—Purple Lovegrass

Leaves rolled in bud-shoot; *sheath* round, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* broad, ring of hairs at base; *ligule* a fringe of hairs, about .2 mm. long; *blade* 8 to 10 mm. wide, long hairy near base above, smooth below, margin rough and hyaline. *Inflorescence*—a diffuse, bright purple panicle two-thirds entire height of plant. Throughout. Sandy soil.

19b. Ligule at least .4 mm. long 20

20a. Sheath distinctly flattened 21

20b. Sheath not distinctly flattened



81. Tridens flavus—Purpletop

Leaves rolled in bud-shoot; *sheath* round, smooth, sometimes hairy at top, split with overlapping margins; *auricles* absent; *collar* broad, hairy; *ligule* a fringe of hairs, .4 to .8 mm. long; *blade* 8 to 17 mm. wide, hairy above, smooth at least near base below, margins at least slightly rough. *Inflorescence*—an open purple or nearly black panicle. New Hampshire south. Old fields.

21a. Plants with short knotty branching rhizomes

82. Setaria geniculata—Knotroot Foxtail

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, hairy on margins; *ligule* a fringe of hairs, .4 to .8 mm. long; *blade* 5 to 11 mm. wide, hairy above at least on lower half, keeled and smooth below at least near base, margins smooth to slightly rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, yellow or purplish, erect, spike-like. Massachusetts south. Open ground, cultivated soil, pastures, moist ground and salt marshes.



21b. Plants without rhizomes

83. Setaria lutescens—Yellow Foxtail

Leaves rolled in bud-shoot; *sheath* distinctly flattened, keeled, smooth, sometimes sparsely hairy at base, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided, hairy on margins; *ligule* a fringe of hairs, .5 to 1 mm. long; *blade* 5 to 10 mm. wide, smooth to slightly rough above and mostly with a few long hairs near base, smooth below at least near base, margins at least slightly rough. *Inflorescence*—dense, bristly, cylindrical, yellow, erect, spike-like. Common throughout. Cultivated soil and waste places.



GROUP 7

- 1a. Sheath distinctly flattened 2
 1b. Sheath not distinctly flattened 5

2a. Sheath hairy

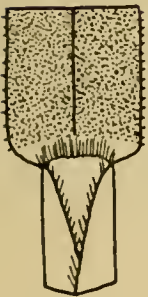


84. *Cenchrus tribuloides*—Dune Sandbur

Leaves rolled in bud-shoot; *sheath* distinctly flattened, keeled, sparsely long or short hairy, split with margins hairy; *auricles* absent; *collar* narrow, sometimes hairy; *ligule* a fringe of hairs, 1 to 2 mm. long; *blade* 4 to 7 mm. wide, smooth to rough above, smooth and keeled below, margins smooth to rough and hyaline. *Inflorescence*—a nearly round, hairy bur with sharp spines. Staten Island, N. Y., south. Loose sands of coast.

- 2b. Sheath not hairy 3

3a. Sheath loose or inflated

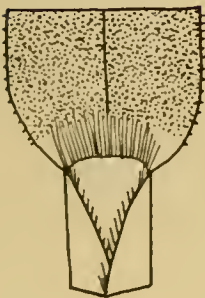


85. *Cenchrus pauciflorus*—Field Sandbur

Leaves rolled in bud-shoot; *sheath* loose, distinctly flattened, keeled, smooth, split with overlapping margins hairy; *auricles* absent; *collar* narrow; *ligule* a fringe of hairs, 1 to 1.6 mm. long; *blade* 5 to 10 mm. wide, rough above, keeled and rough below at least near tip, margins rough. *Inflorescence*—a nearly round, hairy bur with sharp spines. Throughout. Sandy open ground.

- 3b. Sheath not loose or inflated 4

4a. Ligule more than 2 mm. long



86. *Setaria magna*—Giant Millet

Leaves rolled in bud-shoot; *sheath* distinctly flattened, keeled, smooth, split with overlapping hairy margins; *auricles* absent; *collar* narrow; *ligule* a fringe of hairs, 2.5 to 3.5 mm. long; *blade* 15 to 45 mm. wide, rough above and below and on margins, keeled below. *Inflorescence*—dense, bristly, cylindrical, nodding, spike-like, to 20 in. long. New Jersey south. Marshes and wet places along coast.

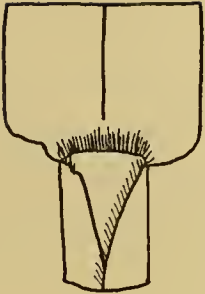
4b. Ligule less than 2 mm. long



87. *Setaria verticillata*—Bristly Foxtail

Leaves rolled in bud-shoot; *sheath* distinctly flattened, keeled, smooth, split with overlapping hairy margins; *auricles* absent; *collar* narrow, divided; *ligule* a fringe of hairs, 1 to 1.4 mm. long; *blade* to 8 mm. wide, rough above, smooth near base and rough near tip below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, erect, spike-like, with barbed bristles. Massachusetts south. Cultivated soil and waste places.

- 5a. Ligule not more than 2 mm. long 6
 5b. Ligule more than 2 mm. long 11
- 6a. Blade generally more than 15 mm. wide 7
 6b. Blade generally 15 mm. or less wide 8



7a. Plants with large creeping rhizomes

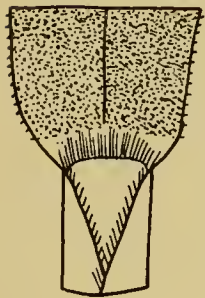
88. *Panicum hemitomen*—Maidencane

Leaves rolled in bud-shoot; *sheath* round, smooth or sometimes densely hairy, split with one margin hairy; *auricles* absent; *collar* broad; *ligule* a fringe of hairs, 1 to 1.6 mm. long; *blade* to 22 mm. wide, smooth above and below, margins smooth to slightly rough. *Inflorescence*—a narrow panicle with erect, distant branches. New Jersey south on Coastal Plain. Moist soil, often in water.

7b. Plants without creeping rhizomes

89. *Setaria italica*—Foxtail Millet

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, mostly smooth but may be short hairy or slightly rough, split with overlapping margins hairy; *auricles* absent; *collar* narrow to broad, sometimes divided, hairy; *ligule* a fringe of hairs, 1 to 2 mm. long; *blade* to 40 mm. wide, rough above, rough below at least near tip, margins rough to very rough. *Inflorescence*—dense, bristly, cylindrical, yellowish or purplish, spike-like. Cultivated for forage.



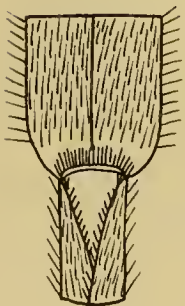
- 8a. Sheath hairy 9

- 8b. Sheath not hairy 10

9a. Sheath dense long hairy

90. *Panicum capillare*—Witchgrass

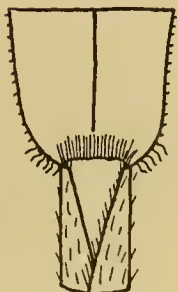
Leaves rolled in bud-shoot; *sheath* round, dense long hairy, split with overlapping hairy margins; *auricles* absent; *collar* broad, hairy; *ligule* a fringe of hairs, 1.4 to 1.6 mm. long, fused at base; *blade* 10 to 13 mm. wide, dense long hairy above, short hairy below, margins long hairy. *Inflorescence*—a very diffuse, densely flowered panicle, about half entire height of plant. Throughout. Cultivated fields, open ground and waste places.



9b. Sheath sparsely short hairy

91. *Setaria viridis*—Green Foxtail

Leaves rolled in bud-shoot; *sheath* round, sparsely short hairy, split with at least one margin hairy; *auricles* absent; *collar* narrow to broad, hairy at least on margins; *ligule* a fringe of hairs, 1 to 2 mm. long; *blade* 8 to 15 mm. wide, smooth to rough above and below, midrib prominent below, margins rough. *Inflorescence*—dense, bristly, cylindrical, green or purplish, erect, spike-like. Common throughout. Cultivated soil and waste places.



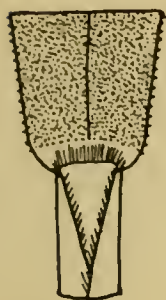
10a. Plants with large creeping rhizomes, only in salt marshes



92. *Spartina alterniflora*—Smooth Cordgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins hairy; *auricles* absent; *collar* broad, indistinct; *ligule* a fringe of hairs, 1 to 2 mm. long; *blade* 10 to 12 mm. wide, smooth above and below, margins smooth and hyaline. *Inflorescence*—a series of comb-like spikes forming an appressed panicle. Maine south along coast. Salt marshes, often in water.

10b. Plants without creeping rhizomes



93. *Setaria viridis*—Green Foxtail

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping margins hairy; *auricles* absent; *collar* narrow to broad, divided, sometimes hairy; *ligule* a fringe of hairs, 1 to 2 mm. long; *blade* 8 to 15 mm. wide, rough above, smooth to somewhat rough below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, green or purplish, erect, spike-like. Common throughout. Cultivated soil and waste places.

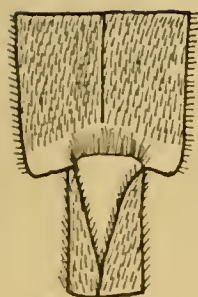
11a. Ligule 3 mm. or less long 12

11b. Ligule more than 3 mm. long 17

12a. Sheath hairy at least at top 13

12b. Sheath not hairy 15

13a. Sheath dense velvety short hairy

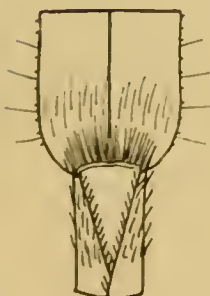


94. *Panicum scoparium*—Velvety Panicum

Leaves rolled in bud-shoot; *sheath* round, dense velvety short hairy, split with overlapping margins hairy; *auricles* absent; *collar* medium broad to broad, hairy; *ligule* a fringe of hairs, 1.5 to 3 mm. long; *blade* 10 to 20 mm. wide, short velvety hairy above and below, margins short hairy. *Inflorescence*—an open, many branched panicle with sticky blotches on axis and branches. Massachusetts south. Wet or damp soil.

13b. Sheath smooth, hairy at top only 14

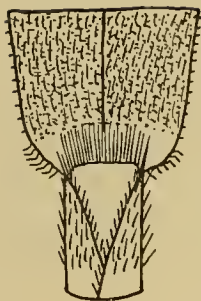
14a. Blade smooth above, long hairy near base



95. *Panicum amaralum*—Bitter Panicgrass

Leaves rolled in bud-shoot; *sheath* round, smooth and hairy at top, split with overlapping margins hairy; *auricles* absent; *collar* broad, divided; *ligule* a fringe of hairs, 2 to 3 mm. long, fused at base; *blade* 10 to 13 mm. wide, smooth above with long hairs near base, smooth and midrib prominent below, margins rough and hyaline with a few long hairs. *Inflorescence*—a large, compact, densely flowered, slightly nodding panicle. New Jersey south. Sandy shores and coast dunes.

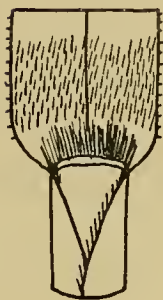
14b. Blade rough and short hairy above



96. *Setaria faberii*—Giant Foxtail

Leaves rolled in bud-shoot; *sheath* round, smooth and hairy at top, split with overlapping margins hairy; *auricles* absent; *collar* broad, hairy on margins; *ligule* a fringe of hairs, 2 to 3 mm. long; *blade* 10 to 20 mm. wide, rough and short hairy above, smooth and keeled below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, nodding, spike-like. New York south. Common. Waste and cultivated ground.

15a. Blade not more than 15 mm. wide

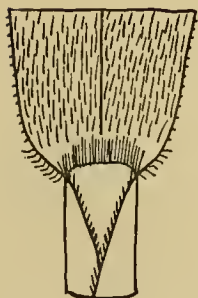


97. *Panicum virgatum*—Switchgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with at least one margin hairy; *auricles* absent; *collar* broad, may be hairy on margins; *ligule* a fringe of hairs 2 to 3 mm. long, fused at base; *blade* 7 to 15 mm. wide, mostly hairy above at least near base but may be smooth, smooth below at least near base, margins at least slightly rough and hyaline or scarious. *Inflorescence*—an open, widely spreading panicle. Common throughout. Open ground and brackish marshes.

15b. Blade to 20 mm. or more wide 16

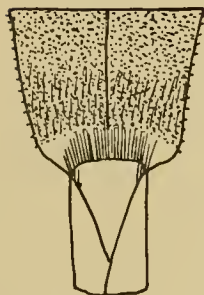
16a. Blade short hairy above



98. *Setaria faberii*—Giant Foxtail

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins hairy; *auricles* absent; *collar* broad, may be divided, hairy on margins; *ligule* a fringe of hairs, 2 to 3 mm. long, may be fused at base; *blade* 10 to 20 mm. wide, short hairy above, smooth below at least near base with midrib prominent, margins rough to very rough. *Inflorescence*—dense, bristly, cylindrical, nodding, spike-like. New York south. Common. Waste and cultivated ground.

16b. Blade rough or short hairy near base only



99. *Setaria italica*—Foxtail Millet

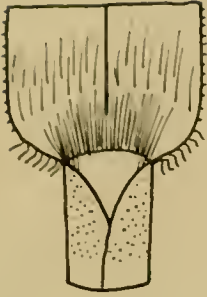
Leaves rolled in bud-shoot; *sheath* round, smooth to somewhat rough, split with overlapping hairy margins; *auricles* absent; *collar* narrow to broad, sometimes divided, hairy; *ligule* a fringe of hairs, 2 to 3 mm. long; *blade* to 30 mm. wide, rough above and short hairy near base, slightly rough below with midrib prominent, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, yellowish or purplish, spike-like. Cultivated for forage.

17a. Blade not more than 15 mm. wide 18

17b. Blade 20 to 40 mm. wide

100. Pennisetum spp.—Gahi No. 1 Millet

Leaves rolled in bud-shoot; *sheath* somewhat flattened, slightly rough or hairy at top, split with overlapping margins hyaline or hairy; *auricles* absent; *collar* broad, may be divided, hairy at least on margins; *ligule* a fringe of hairs, 3 to 6 mm. long; *blade* 20 to 40 mm. wide, smooth to slightly rough above and long hairy near base, smooth to rough below, margins rough and hyaline. *Inflorescence*—a stiff, cylindrical, very dense panicle. May be cultivated in southern part for forage.



18a. Blade long hairy above and below

101. Panicum villosissimum—White-haired Panicgrass

Leaves rolled in bud-shoot; *sheath* loose, round, long hairy, split with overlapping hairy margins; *auricles* absent; *collar* broad, hairy, *ligule* a fringe of hairs, 3 to 5 mm. long; *blade* 5 to 12 mm. wide, long hairy above and below, margins rough. *Inflorescence*—a loosely flowered panicle with branches stiffly ascending or spreading. Massachusetts south. Dry or sterile soil.



18b. Blade not long hairy above and below

102. Panicum virgatum—Switchgrass

Leaves rolled in bud-shoot; *sheath* round, smooth or somewhat hairy, split with margins overlapping and at least one hairy; *auricles* absent; *collar* medium broad to broad, may be divided, sometimes hairy on margins; *ligule* a fringe of hairs, 3 to 6.5 mm. long, may be fused at base; *blade* 7 to 15 mm. wide, mostly smooth above but may be long hairy near base, smooth below, margins rough. *Inflorescence*—an open, widely spreading panicle. Common throughout. Open ground and brackish marshes.



GROUP 8

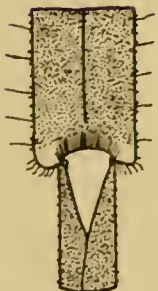
1a. Ligule 2 mm. or less long 2

1b. Ligule more than 2 mm. long 12

2a. Blade 5 mm. or less wide

103. Triplasis purpurea—Purple Sandgrass

Leaves rolled in bud-shoot; *sheath* round, rough, purplish, split with overlapping margins, hairy at nodes; *auricles* absent; *collar* medium broad, hairy on margins; *ligule* a fringe of hairs, 1 to 1.4 mm. long; *blade* 3 to 4.5 mm. wide, very rough above and below, margins rough with a few long hairs near base. *Inflorescence*—a short, few-branched, spreading panicle. Maine south. Dry sand.



2b. Blade more than 5 mm. wide 3

3a. Sheath hairy	11
3b. Sheath not hairy	4
4a. Sheath distinctly flattened	9
4b. Sheath not distinctly flattened	5

5a. Collar hairy on margins

104. *Spartina pectinata*—Prairie Cordgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, hairy on margins; *ligule* a fringe of hairs, 1.5 to 2 mm. long; *blade* 6 to 10 mm. wide, smooth near base and rough near tip above and below, midrib prominent below, margins rough and hyaline. *Inflorescence*—a series of comb-like spikes forming an appressed panicle. Throughout. Fresh-water marshes.

5b. Collar not hairy on margins 6

6a. Plants with large creeping rhizomes 7

6b. Plants without creeping rhizomes

105. *Setaria faberii*—Giant Foxtail

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad; *ligule* a fringe of hairs, about 2 mm. long; *blade* to 25 mm. wide, rough above, smooth and keeled below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, nodding spike-like. New York south. Common. Waste and cultivated ground.

7a. Blade smooth above and below 8

7b. Blade rough above and below at least near tip

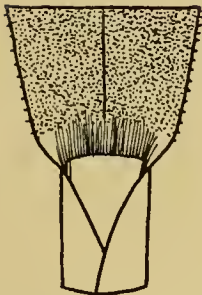
106. *Tripsacum dactyloides*—Eastern Gamagrass

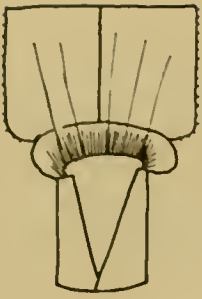
Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins; *auricles* absent; *collar* narrow to medium broad, divided; *ligule* a fringe of hairs, 1 to 1.5 mm. long, may be fused at base; *blade* 15 to 30 mm. wide, rough above and below at least near tip, margins rough to very rough and hyaline. *Inflorescence*—1 to 3 terminal, unisexual spikes. Massachusetts south. Moist places and banks near water.

8a. Widest blades less than 20 mm. wide

107. *Spartina alterniflora*—Smooth Cordgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, indistinct; *ligule* a fringe of hairs, to 2 mm. long, may be fused at base and appear membranous; *blade* 10 to 18 mm. wide, smooth above and below, margins smooth to slightly rough and hyaline. *Inflorescence*—a series of comb-like spikes forming an appressed panicle. Maine south along coast. Salt marshes, often in water.





8b. Widest blades more than 20 mm. wide

108. Phragmites communis—Common Reed

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping scarious margins; *auricles* absent; *collar* broad; *ligule* a fringe of hairs, to 1.2 mm. long, mostly with a few hairs to 6 mm. or more long; *blade* 20 mm. or more wide, smooth above and below, margins slightly rough. *Inflorescence*—a large, densely flowered, tawny or purple panicle. South to Maryland. Mostly wet land and marshes.

9a. Blade long hairy near base above

109. Setaria lutescens—Yellow Foxtail

Leaves rolled in bud-shoot; *sheath* distinctly flattened, keeled, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided or hairy on margins; *ligule* a fringe of hairs, 1 to 1.8 mm. long, may be fused at base; *blade* 7 to 12 mm. wide, long hairy near base above, smooth below at least near base, margins at least slightly rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, yellow, erect, spike-like. Common throughout. Cultivated soil and waste places.

9b. Blade rough above 10

10a. Margins of collar hairy

110. Cenchrus pauciflorus—Field Sandbur

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping margins hyaline; *auricles* absent; *collar* broad, hairy on margins; *ligule* a fringe of hairs, 1 to 1.4 mm. long; *blade* to 6 mm. wide, rough above, keeled and smooth near base but rough near tip below, margins rough and hyaline. *Inflorescence*—a nearly round, hairy bur with sharp spines. Throughout. Sandy, open ground.

10b. Margins of collar not hairy

111. Setaria verticillata—Bristly Foxtail

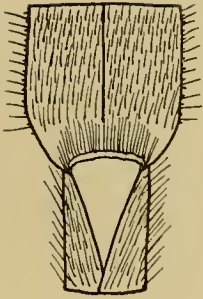
Leaves rolled in bud-shoot; *sheath* distinctly flattened, keeled, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* a fringe of hairs, 1 to 1.6 mm. long, fused at base; *blade* 5 to 10 mm. wide, rough above, smooth below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, erect, spike-like, with barbed bristles. Massachusetts south. Cultivated soil and waste places.

11a. Blade 5 to 6 mm. wide

112. Danthonia sericea—Downy Oatgrass

Leaves folded in bud-shoot; *sheath* round, long hairy, split with overlapping margins; *auricles* absent; *collar* broad, hairy; *ligule* a fringe of hairs, .8 to 1.2 mm. long; *blade* 5 to 6 mm. wide, smooth above, long hairy below, margins long hairy. *Inflorescence*—a narrow panicle with stiff, short branches bearing 2 to 6 spikelets. Massachusetts south. Chiefly Coastal Plain. Sand barrens.

11b. Blade 8 to 15 mm. wide



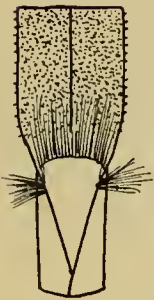
113. *Panicum capillare*—Witchgrass

Leaves rolled in bud-shoot; *sheath* round, long hairy, split with overlapping hyaline margins; *auricles* absent; *collar* broad, hairy; *ligule* a fringe of hairs, 1 to 2 mm. long, fused at base; *blade* 8 to 15 mm. wide, hairy above and below, margins rough and long hairy at least near base. *Inflorescence*—a very diffuse, densely flowered panicle, about half entire height of plant. Throughout. Cultivated fields, open ground and waste places.

12a. Sheath hairy at least at top or throat 13

12b. Sheath not hairy 16

13a. Blade not more than 5 mm. wide



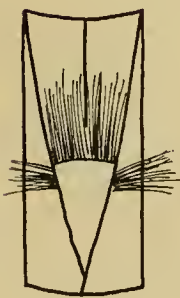
114. *Danthonia spicata*—Poverty Oatgrass

Leaves folded in bud-shoot; *sheath* round to somewhat flattened, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* a fringe of hairs, 4 to 6 mm. long; *blade* 3 to 5 mm. wide, rough above, smooth near base and rough near tip below, margins rough. *Inflorescence*—a narrow panicle with stiff, short branches bearing one spikelet. Throughout. Sandy and sterile or rocky soil.

13b. Blade more than 5 mm. wide 14

14a. Blade hairy above at least near base 15

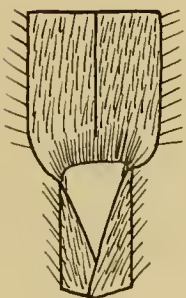
14b. Blade not hairy above



115. *Uniola paniculata*—Sea Oats

Leaves rolled in bud-shoot; *sheath* round, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* broad, indistinct; *ligule* a fringe of hairs, 2.5 to 3 mm. long; *blade* 7 to 10 mm. wide, smooth to rough above, smooth below, margins smooth and hyaline. *Inflorescence*—a pale, condensed, heavy, nodding panicle. Eastern shore of Virginia south. Sand dunes of sea coast.

15a. Ligule to 3 mm. long



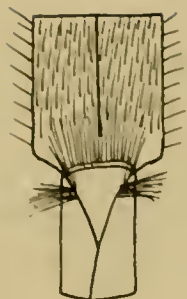
116. *Paspalum pubescens*—Hairy Paspalum

Leaves rolled in bud-shoot; *sheath* distinctly flattened, keeled, long hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, hairy; *ligule* a fringe of hairs, 2 to 3 mm. long; *blade* 8 to 12 mm. wide, long hairy above and below, margins long hairy and hyaline. *Inflorescence*—1 to 3 one-sided, spike-like branches with flat, round to oval seed. Vermont south. Common in old fields and pastures.

15b. Ligule more than 3 mm. long

117. *Panicum amaralum*—Bitter Panicgrass

Leaves rolled in bud-shoot; *sheath* round, smooth with a tuft of hairs at throat, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* a fringe of hairs, 3 to 8 mm. long, fused at base; *blade* 8 to 13 mm. wide, smooth above and long hairy near base, smooth below with midrib prominent, margins long hairy and hyaline. *Inflorescence*—a large, compact, densely flowered, slightly nodding panicle. New Jersey south. Sandy shores and coast dunes.



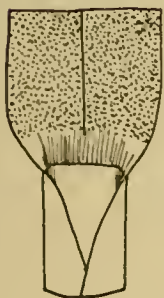
16a. Widest blades to 15 mm. wide 17

16b. Widest blades more than 15 mm. wide 18

17a. Blade rough above at least near tip

118. *Spartina pectinata*—Prairie Cordgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins; *auricles* absent; *collar* medium broad to broad, may be hairy on margins; *ligule* a fringe of hairs, 2 to 4 mm. long, may be fused at base; *blade* commonly 10 to 15 mm. wide, rough to very rough above, smooth and mostly glossy below, margin smooth to very rough. *Inflorescence*—a series of comb-like spikes forming an appressed panicle. Throughout. Fresh water marshes.



17b. Blade smooth above.

119. *Panicum virgatum*—Switchgrass

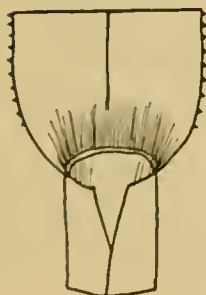
Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided; *ligule* a fringe of hairs, 2 to 4 mm. long; *blade* 10 to 15 mm. wide, smooth above and mostly hairy near base, smooth below, margins smooth to somewhat rough. *Inflorescence*—an open, widely spreading panicle. Common throughout. Open ground and brackish marshes.



18a. Blade margins very rough, a plant of salt or brackish marshes

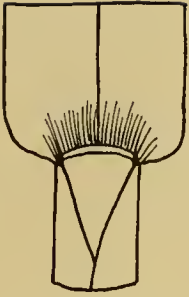
120. *Spartina cynosuroides*—Big Cordgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* a fringe of hairs, 3 to 3.5 mm. long, fused at base; *blade* to 30 mm. wide, smooth above at least near base, smooth below with midrib prominent, margins very rough and hyaline. *Inflorescence*—a series of comb-like spikes forming a somewhat open panicle. Massachusetts south. Salt or brackish marshes along coast.



18b. Blade margins smooth to rough, not of salt or brackish marshes 19

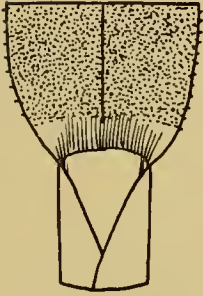
19a. Collar not hairy



121. *Panicum dichotomiflorum*—Fall Panicum

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad; *ligule* a fringe of hairs, 2 to 3 mm. long, mostly fused at base; *blade* 15 to 20 mm. wide, mostly smooth above but sometimes slightly rough near tip or sparsely hairy near base, smooth and glossy below, margins smooth to rough. *Inflorescence*—widely spreading terminal and axillary panicles. Common throughout. Cultivated fields, moist ground and waste places.

19b. Collar hairy



122. *Setaria faberii*—Giant Foxtail

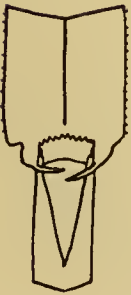
Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided, hairy; *ligule* a fringe of hairs, 1.5 to 3 mm. long; *blade* 15 to 25 mm. wide, rough above, smooth near base and rough near tip below, margins rough and hyaline. *Inflorescence*—dense, bristly, cylindrical, nodding, spike-like. New York south. Common. Waste and cultivated ground.

GROUP 9

1a. Sheath rolled in bud-shoot 3

1b. Sheath folded in bud-shoot 2

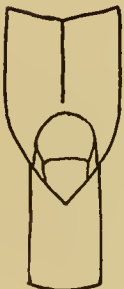
2a. Auricles present



123. *Lolium perenne*—Perennial Ryegrass

Leaves folded in bud-shoot; *sheath* distinctly flattened to almost round, smooth, closed to near top; *auricles* small; *collar* narrow; *ligule* membranous, to 2 mm. long, rounded, toothed; *blade* to 6 mm. wide, smooth above and below, glossy and keeled below, margins slightly rough. *Inflorescence*—a long, narrow, flat spike with unawned spikelets placed edge to rachis. Cultivated throughout.

2b. Auricles absent



124. *Glyceria striata*—Fowl Mannagrass

Leaves folded in bud-shoot; *sheath* round to distinctly flattened, smooth to slightly rough, closed to near top; *auricles* absent; *collar* medium broad to broad, may be divided; *ligule* membranous, generally 2 to 5 mm. long but may be shorter, rounded to acute; *blade* 4 to 8 mm. wide, smooth above and below at least near base, margins smooth to rough, tip boat-shaped. *Inflorescence*—an open, nodding panicle. Throughout. Moist meadows and wet places.

3a. Ligule more than 3 mm. long 4

3b. Ligule 3 mm. or less long 5

4a. Blade margins hairy

125. *Bromus rigidus*—Ripgut Grass

Leaves rolled in bud-shoot; *sheath* round, hairy, closed to near top; *auricles* absent; *collar* narrow, mostly hairy; *ligule* membranous, 3 to 5 mm. long, rounded, toothed; *blade* 5 to 10 mm. wide, hairy above and below, margins short hairy or sometimes very rough. *Inflorescence*—an open, nodding, few-flowered panicle with stout awns to 6 in. long. Maryland south, rare. Open ground and waste places.

4b. Blade margins not hairy

126. *Bromus catharticus*—Rescue Grass

Leaves rolled in bud-shoot; *sheath* round to somewhat compressed, short hairy, closed to near top; *auricles* absent; *collar* medium broad to broad, divided; *ligule* membranous, 3 to 6 mm. long, rounded, sometimes toothed; *blade* 7 to about 12 mm. wide, mostly rough above and below but sometimes hairy on one or both surfaces, margin rough or occasionally short hairy. *Inflorescence*—an open, nodding panicle. Only rarely north of Virginia. Waste places.

5a. Blade hairy above 6

5b. Blade not hairy above

127. *Bromus inermis*—Smooth Bromegrass

Leaves rolled in bud-shoot; *sheath* round, smooth or frequently short hairy on lower sheaths, closed to near top; *auricles* absent; *collar* mostly medium broad to broad and divided; *ligule* membranous, mostly less than 1 mm. long, truncate to rounded; *blade* generally to 10 to 15 mm. wide, smooth above and below (rarely short hairy), margins smooth to rough. *Inflorescence*—an erect, dense panicle. South to Maryland. Fields and waste places.

6b. Sheath densely soft white hairy 9

6b. Sheath not densely soft white hairy 7

7a. Collar hairy at least on margins

128. *Bromus sterilis*—Barren Chess

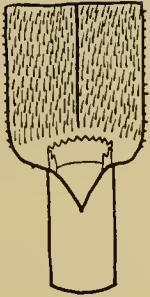
Leaves rolled in bud-shoot; *sheath* round, short hairy, closed to near top; *auricles* absent; *collar* narrow to medium broad, divided, hairy; *ligule* membranous, 2 to about 3 mm. long, rounded, toothed, may be ciliate; *blade* 5 to 9 mm. wide, short hairy above and below, margins hairy. *Inflorescence*—an open, nodding few-flowered panicle with awns to about 1 in. long. Throughout. Not common. Fields and waste places.

NOTE: The bromegrasses are quite variable in their vegetative characteristics and it is not possible to always readily separate the species. The key given here is based on the characteristics most commonly found.

8a. Sheath smooth or sparsely hairy

129. *Bromus secalinus*—Cheat

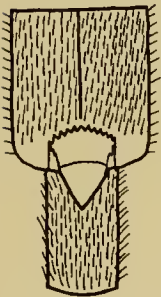
Leaves rolled in bud-shoot; *sheath* round, mostly smooth but sometimes sparsely hairy, closed to near top; *auricles* absent; *collar* narrow to medium broad, divided; *ligule* membranous, 1.2 to 2.5 mm. long, rounded, toothed; *blade* 5 to 10 mm. wide, mostly hairy above and below but occasionally smooth, margins rough or short hairy. *Inflorescence*—an open panicle. Throughout. Not common in southern part. Grain fields and waste places.



8b. Sheath evenly hairy

130. *Bromus commutatus*—Hairy Cheat

Leaves rolled in bud-shoot; *sheath* round, short hairy, closed to near top; *auricles* absent; *collar* narrow to broad, divided; *ligule* membranous, mostly 1 to 2 mm. long but at times to 3 mm., rounded, toothed; *blade* mostly 5 to 10 mm. wide but occasionally to 12 mm., hairy above and below and on margins. *Inflorescence*—an open panicle. Throughout. Common in southern part. Fields and waste places.



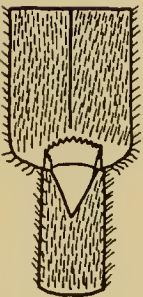
9a. Ligule not more than 1.5 mm. long 10

9b. Ligule more than 1.5 mm. long 11

10a. Collar hairy at least on margins

131. *Bromus japonicus*—Japanese Chess

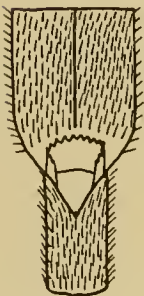
Leaves rolled in bud-shoot; *sheath* round, densely soft white hairy, closed to near top; *auricles* absent; *collar* mostly narrow and divided, generally hairy at least on margins; *ligule* membranous, mostly .8 to 1.5 mm. long but occasionally longer, rounded and toothed, sometimes ciliate; *blade* mostly to 6 to 8 mm. wide, dense hairy above and below, margins generally hairy. *Inflorescence*—open, diffuse, somewhat drooping panicle. Vermont south. Common. Waste places.



10b. Collar not hairy

132. *Bromus mollis*—Soft Chess

Leaves rolled in bud-shoot; *sheath* round, densely soft white hairy, closed to near top; *auricles* absent; *collar* narrow, divided; *ligule* membranous, .6 to 1.5 mm. long, rounded, toothed; *blade* 5 to 9 mm. wide, hairy above and below and on margins. *Inflorescence*—an erect, contracted, crowded panicle. Throughout. Not common. Waste places and cultivated soil.



11a. Collar hairy at least on margins

133. *Bromus tectorum*—Downy Chess

Leaves rolled in bud-shoot; *sheath* round, densely soft white hairy, frequently purplish, closed to near top; *auricles* absent; *collar* narrow to medium broad, divided, mostly hairy; *ligule* membranous, 1.5 to 3 mm. long, rounded to acute, may be toothed and ciliate; *blade* mostly 5 to 8 mm. wide, hairy above and below and on margins. *Inflorescence*—a rather dense, soft, drooping, often purple panicle. Throughout. Waste places.



11b. Collar not hairy

134. *Bromus arvensis*—Field Bromegrass

Leaves rolled in bud-shoot; *sheath* round, densely soft white hairy, closed to near top; *auricles* absent; *collar* narrow to medium broad; *ligule* membranous, 1.5 to 3 mm. long, rounded, sometimes toothed; *blade* 5 to 10 mm. wide, hairy above and below, margins rough or sparse long hairy. *Inflorescence*—an open, diffuse, somewhat drooping panicle. New York south. Cultivated.



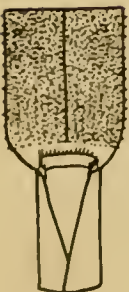
GROUP 10

1a. Leaves rolled in bud-shoot	2
1b. Leaves folded in bud-shoot	8
 2a. Sheath hairy at least at top	6
2b. Sheath not hairy	3
 3a. Collar hairy on margins	5
3b. Collar not hairy	4

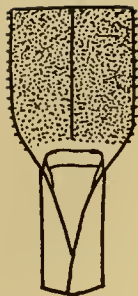
4a. Blade hairy above, at least near base

135. *Setaria geniculata*—Knotroot Foxtail

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, about .6 mm. long, truncate, short ciliate; *blade* 5 to 8 mm. wide, rough above and sparse long hairy near base, smooth below at least near base, margins slightly rough at least near tip and hyaline. *Inflorescence*—dense, bristly, cylindrical, yellow or purplish, erect, spike-like. Massachusetts south. Open ground, cultivated soil, pastures, moist ground and salt marshes.



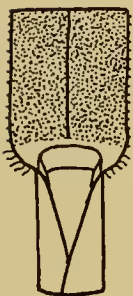
4b. Blade not hairy above



136. *Uniola laxa*—Slender Uniola

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, .2 to .4 mm. long, truncate; *blade* to 8 mm. wide, rough above, smooth below and keeled, margins rough. *Inflorescence*—a slender, nodding panicle. Coastal Plain, Long Island south. Moist, shady places.

5a. Plants with creeping rhizomes, blades to 4 in. long



137. *Muhlenbergia frondosa*—Wirestem Muhly

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, hairy on margins; *ligule* membranous, about 1 mm. long; *blade* 3 to 8 mm. wide, rough above, rough below at least near tip, margins rough. *Inflorescence*—numerous, slender panicles. Throughout. Not common. Low ground and waste places.

5b. Plants without creeping rhizomes, blades not over 2½ in. long

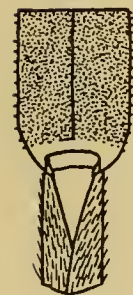


138. *Muhlenbergia schreberi*—Nimblewill

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad to broad, hairy on margins; *ligule* membranous, .4 to .8 mm. long, truncate to rounded; *blade* to 7 mm. wide, rough above, rough below at least near tip, margins rough and hyaline. *Inflorescence*—numerous, slender panicles. New Hampshire south. Lawns, pastures and waste places.

6a. Collar hairy at least on margins 7

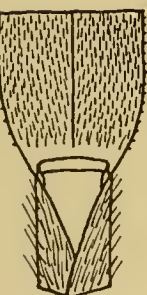
6b. Collar not hairy



139. *Hordeum jubatum*—Squirrel-tail Barley

Leaves rolled in bud-shoot; *sheath* distinctly flattened, short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided; *ligule* membranous, about .6 mm. long, truncate; *blade* 3 to 5 mm. wide, rough above and below and on margins. *Inflorescence*—a dense, very bushy, nodding spike. South to Maryland. Meadows and waste places.

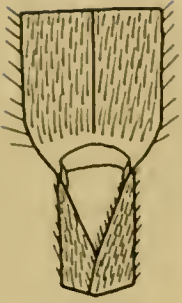
7a. Ligule .2 to .4 mm. long



140. *Panicum anceps*—Flat-stemmed Panicgrass

Leaves rolled in bud-shoot; *sheath* distinctly flattened, long hairy at least near top, split with overlapping margins mostly hyaline but sometimes one hairy; *auricles* absent; *collar* narrow to broad, hairy; *ligule* membranous, .2 to .4 mm. long, truncate, may be ciliate; *blade* 10 to 18 mm. wide, short hairy above at least on lower half, smooth below with midrib prominent, margins rough and hyaline. *Inflorescence*—a very loose, open panicle. New Jersey south. Moist sandy soil.

7b. Ligule .6 to 1 mm. long



141. Paspalum pubescens—Hairy Paspalum

Leaves rolled in bud-shoot; *sheath* distinctly flattened, hairy at least at top, split with at least one overlapping margin hairy; *auricles* absent; *collar* narrow, hairy; *ligule* membranous, .6 to 1 mm. long, rounded; *blade* 10 to 18 mm. wide, long hairy above, hairy below with midrib prominent, margins long hairy and hyaline. *Inflorescence*—1 to 3 one-sided, spike-like branches with flat round to oval seed. Vermont south. Pastures, open ground and old fields.

8a. Blade tips boat-shaped 9

8b. Blade tips not boat-shaped 11

9a. Plants with slender creeping rhizomes 10

9b. Plants tufted, without creeping rhizomes



142. Poa annua—Annual Bluegrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* membranous, .8 to 1 mm. long, rounded; *blade* to 4 mm. wide, smooth above and below, margins smooth at least near base, tips boat-shaped. *Inflorescence*—a small, open, few-branched panicle. Common throughout. Lawns, pastures, open ground and waste places.

10a. Plant bluish-green, somewhat glaucous



143. Poa compressa—Canada Bluegrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, keeled, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided, occasionally hairy; *ligule* membranous, mostly .6 to 1 mm. long, truncate; *blade* glaucous, to 6 mm. wide, smooth above and below, keeled below, margins at least slightly rough and hyaline, tips boat-shaped. *Inflorescence*—a narrow, short-branched panicle. Common throughout. Meadows, open ground and waste places.

10b. Plant dark green, not glaucous

144. Poa pratensis—Kentucky Bluegrass



Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided, sometimes hairy on margins; *ligule* membranous, .2 to 1 mm. long (mostly .4 to .6), truncate; *blade* to 5 mm. wide, smooth above but occasionally short hairy, smooth and keeled below, margins smooth to slightly rough, tip boat-shaped. *Inflorescence*—an open pyramidal panicle. Common throughout. Lawns, meadows, open ground and waste places.



11a. Auricles present

145. *Lolium perenne*—Perennial Ryegrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* small; *collar* narrow to broad, divided; *ligule* membranous, to .8 or 1 mm. long, truncate to rounded; *blade* to 4 mm. wide, smooth above, smooth and glossy below, margins smooth to rough and hyaline. *Inflorescence*—long, narrow, flat spikes with unawned spikelets placed edge to rachis. Cultivated throughout.

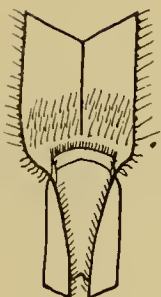
11b. Auricles absent 12

12a. Sheath hairy at least at top 13

12b. Sheath not hairy

146. *Andropogon virginicus*—Broomsedge

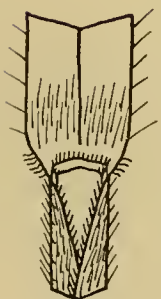
Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split with margins hairy; *auricles* absent; *collar* narrow, divided, mostly hairy on margins; *ligule* membranous, .4 to .8 mm. long, truncate to rounded, ciliate; *blade* 3 to 7 mm. wide, hairy near base above, smooth to rough below, margins rough and long hairy. *Inflorescence*—a narrow panicle with feathery branches. New York south. Mostly old fields.



13a. Ligule about .4 mm. long

147. *Andropogon ternarius*—Silver Beardgrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, long hairy, split with overlapping margins hairy; *auricles* absent; *collar* narrow, divided, hairy on margins; *ligule* membranous, about .4 mm. long, truncate, ciliate; *blade* 4 to 7 mm. wide, long hairy near base above, rough and keeled below, margins sparsely long hairy and hyaline. *Inflorescence*—a narrow panicle with silver to creamy or grayish feathery branches. Delaware south. Dry sandy soil.



13b. Ligule .6 to 1 mm. long

148. *Eleusine indica*—Goosegrass

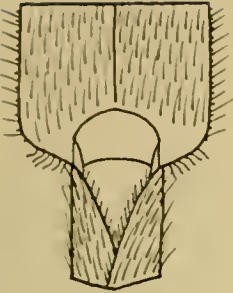
Leaves folded in bud-shoot; *sheath* distinctly flattened, hairy at top, split with overlapping margins sometimes hairy; *auricles* absent; *collar* broad, hairy on margins; *ligule* membranous, .6 to 1 mm. long, truncate, sometimes short ciliate; *blade* 5 to 10 mm. wide, sparsely long hairy near base above, smooth and keeled below, margins smooth to rough or sometimes long hairy. *Inflorescence*—2 to 10 flat spikes at or near summit. Massachusetts south, common. Cultivated fields, open ground and waste places.



GROUP 11

- 1a. Blade blue-green (glaucous) above and below 2
- 1b. Blade not blue-green 3

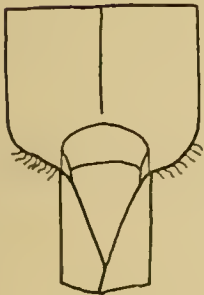
2a. Sheath long hairy



149. *Paspalum floridanum*—Florida Paspalum

Leaves rolled in bud-shoot; *sheath* distinctly flattened, long hairy, split with overlapping margins hairy; *auricles* absent; *collar* narrow, hairy at least on margins; *ligule* membranous, 2 to 3 mm. long, truncate to rounded; *blade* to 20 mm. wide, glaucous, long hairy above and below, margins rough and mostly long hairy. *Inflorescence*—2 to 5 one-sided spike-like branches with flat, round to oval seed. Coastal Plain, Delaware south. Low moist sandy soil.

2b. Sheath smooth or with a few hairs at top

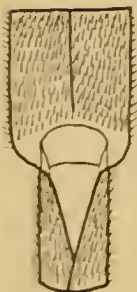


150. *Paspalum floridanum* var. *glabratum*—Smooth Florida Paspalum

Leaves rolled in bud-shoot; *sheath* distinctly flattened, mostly smooth but may be sparsely hairy near top, split with overlapping margins at times hairy; *auricles* absent; *collar* narrow to medium broad, mostly hairy on margins; *ligule* membranous, 1 to 2 mm. long but sometimes to about 3 mm., rounded; *blade* 10 to 22 mm. wide, glaucous, smooth above and may be long hairy near base, smooth and keeled below, margins smooth to rough and sometimes sparsely long hairy. *Inflorescence*—2 to 5 one-sided, spike-like branches with flat, round to oval seed. New Jersey south. Brackish marshes and low sandy ground.

- 3a. Blade hairy above and below 4
- 3b. Blade not hairy on both surfaces 5

4a. Plant dense velvety hairy



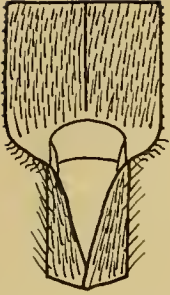
151. *Holcus lanatus*—Velvet Grass

Leaves rolled in bud-shoot; *sheath* distinctly flattened, dense velvety short hairy, split with overlapping margins hairy; *auricles* absent; *collar* medium broad, divided, hairy; *ligule* membranous, to 3 mm. long, rounded; *blade* 5 to 10 mm. wide, dense velvety short hairy above and below, keeled below, margins short hairy. *Inflorescence*—A long, contracted, pale, purple-tinged panicle. Throughout. Open ground, meadows and moist places.

4b. Plant not velvety hairy

152. *Digitaria sanguinalis*—Common Crabgrass

Leaves rolled in bud-shoot; *sheath* distinctly flattened, long hairy, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad to broad, mostly divided, hairy at least on margins; *ligule* membranous, 1 to 2 mm. long, rounded to acute, sometimes toothed, often reddish or purplish; *blade* 5 to 15 mm. wide, hairy above and below, keeled below, margins rough and occasionally hairy. *Inflorescence*—3 to 12 digitate spike-like branches. Common throughout. Fields, gardens and waste places.



5a. Sheath and blade very rough

153. *Leersia oryzoides*—Rice Cut-grass

Leaves rolled in bud-shoot; *sheath* distinctly flattened, very rough, split with overlapping margins; *auricles* absent; *collar* broad divided, hairy on margins, generally dark; *ligule* membranous, about 1.5 mm. long, truncate; *blade* to 8 mm. wide, very rough above and below and on margins, few hairs near base above. *Inflorescence*—a spreading, flexuous-branched panicle. Throughout. Marshes, river banks and wet places.

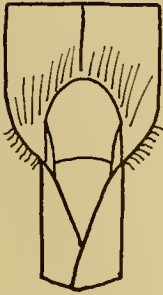


5b. Sheath and blade not very rough 6

6a. Ligule to more than 3 mm. long

154. *Paspalum dilitatum*—Dallis Grass

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, hairy at least on margins; *ligule* membranous, to 5 mm. long, rounded to acute; *blade* 7 to 15 mm. wide, smooth above and mostly long hairy behind ligule, smooth and keeled below, margins smooth to rough and hyaline. *Inflorescence*—3 to 5 one-sided, spike-like branches with flat, round to oval seed. New Jersey south. Pastures, moist fields and waste ground.

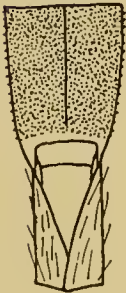


6b. Ligule 3 mm. or less long 7

7a. Plants with creeping rhizomes

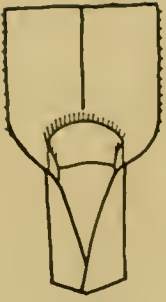
155. *Leersia virginica*—Whitegrass

Leaves rolled in bud-shoot; *sheath* distinctly flattened, sparsely long hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided; *ligule* membranous, 1 to 1.5 mm. long, truncate; *blade* to 8 mm. wide, rough above and below, midrib prominent below and white, margins rough and hyaline. *Inflorescence*—an open panicle with capillary branches distant. Throughout. Moist places.



7b. Plants without creeping rhizomes 8

8a. Blades to 15 mm. or more wide



156. Erianthus contortus—Bent-awn Plumegrass

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping margins hyaline; *auricles* absent; *collar* medium broad, divided, hairy; *ligule* membranous, 1.5 to 2 mm. long, rounded, ciliate; *blade* 10 to 15 mm. wide, smooth above and below, keeled below, margins rough and hyaline. *Inflorescence*—a narrow, dense, silky, brownish panicle. Coastal Plain, Delaware south. Moist sandy ground.

8b. Blades not more than 12 mm. wide 9

9a. Usually growing in large tufts



157. Andropogon gerardi—Big Bluestem

Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth or hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, sometimes divided, may be hairy on margins; *ligule* membranous, 1 to 2.5 or 3 mm. long, truncate to rounded, mostly ciliate; *blade* 7 to 12 mm. wide, usually with at least a few hairs near base above, smooth and keeled below, margins smooth to rough. *Inflorescence*—2 or 3 terminal spike-like branches. Throughout. Dry soil and old fields.

9b. Not usually growing in large tufts 10

10a. Blade V-shaped to folded, at least at base

158. Paspalum laeve—Field Paspalum



Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth but may be hairy at top, split with overlapping hyaline margins (occasionally hairy); *auricles* absent; *collar* narrow, may be hairy on margins; *ligule* membranous, mostly 1 to 2.5 mm. long, truncate; *blade* 8 to 12 mm. wide, smooth above and mostly long hairy near base, smooth and keeled below, margins rough and hyaline. *Inflorescence*—3 to 4 spreading, one-sided, spike-like branches with flat, round to oval seed. New Jersey south. Meadows, old fields and waste ground.

10b. Blade flat

159. Digitaria ischaemum—Smooth Crabgrass



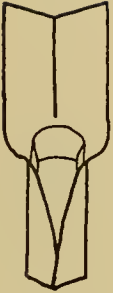
Leaves rolled in bud-shoot; *sheath* distinctly flattened, smooth or occasionally sparsely hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, often divided, may be hairy on margins; *ligule* membranous, 1.5 to 3 mm. long, truncate to rounded; *blade* 5 to 10 mm. wide, smooth above but mostly with a few hairs at least near base, smooth and keeled below, margins smooth to rough and sometimes sparsely long hairy. *Inflorescence*—2 to 6 digitate spike-like branches. Common throughout. Lawns, fields and waste places.

GROUP 12

- 1a. Blade with boat-shaped tip 2
 1b. Blade tip not boat-shaped 4

- 2a. Plants with slender, creeping rhizomes 3

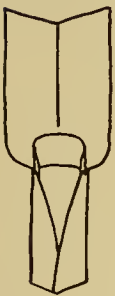
- 2b. Plants tufted, without creeping rhizomes



160. *Poa annua*—Annual Bluegrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided; *ligule* membranous, 1 to 2 mm. long, rounded to acute; *blade* 3 to 6 mm. wide, smooth above, smooth and mostly keeled below, margins smooth and hyaline, tip boat-shaped. *Inflorescence*—a small, open, few-branched panicle. Common throughout. Lawns, pastures, open ground and waste places.

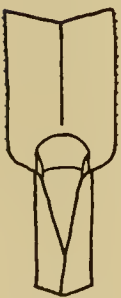
- 3a. Plant bluish-green, somewhat glaucous



161. *Poa compressa*—Canada Bluegrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided; *ligule* membranous, 1 to 2 mm. long, truncate to rounded; *blade* to about 5 mm. wide (occasionally to 7 mm.), smooth above, smooth to somewhat rough and keeled below, margins smooth to rough and hyaline, tip boat-shaped. *Inflorescence*—a narrow, short-branched panicle. Common throughout. Meadows, open ground and waste places.

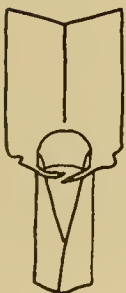
- 3b. Plant dark green, not glaucous



162. *Poa pratensis*—Kentucky Bluegrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth or rarely very short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* membranous, 1 to 1.5 mm. long, truncate; *blade* to 5 mm. wide, smooth above and below, margins slightly rough, tip boat-shaped. *Inflorescence*—an open, pyramidal panicle. Common throughout. Lawns, meadows, open ground and waste places.

- 4a. Blade glossy and shining below

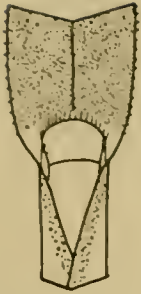


163. *Lolium perenne*—Perennial Ryegrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* small; *collar* narrow; *ligule* membranous, 1 to 2 mm. long, rounded to acute, may be toothed; *blade* to 6 mm. wide, smooth above, smooth and glossy below, margins smooth to slightly rough. *Inflorescence*—long, narrow, flat spikes with unawned spikelets placed edge to rachis. Cultivated throughout.

4b. Blade not glossy and shining below 5

5a. Plants growing on low, wet soil



164. *Andropogon glomeratus*—Bushy Beardgrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, rough or long hairy at least along margins, split with overlapping margins hyaline or sometimes hairy; *auricles* absent; *collar* narrow to medium broad, divided, may be hairy; *ligule* membranous, 1 to 2 mm. long, rounded, mostly ciliate, may be toothed; *blade* 5 to 9 mm. wide, rough above and may be sparsely long hairy near base, smooth to rough and keeled below, margins rough and sometimes sparsely long hairy. *Inflorescence*—a dense, brush-like, feathery panicle. Massachusetts south. Low wet soil.

5b. Plants not usually found on low, wet soil 6

6a. Sheath long hairy, at least along margins



165. *Andropogon virginicus*—Broomsedge

Leaves folded in bud-shoot; *sheath* distinctly flattened, sparsely long hairy at least along margins, split with overlapping margins that may be sparsely long hairy; *auricles* absent; *collar* narrow, divided, may be hairy on margins; *ligule* membranous, 1 to 2 mm. long, rounded, may be ciliate; *blade* 4 to 6 mm. wide, smooth to rough above and sometimes long hairy near base, smooth and keeled below, margins smooth or long hairy. *Inflorescence*—a narrow panicle with feathery branches. New York south. Mostly old fields.

6b. Sheath not long hairy 7

7a. Plant found only on dune sand along coast



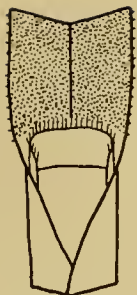
166. *Andropogon littoralis*—Seashore Beardgrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided, may be reddish; *ligule* membranous, 1 to 2 mm. long, rounded, may be ciliate; *blade* 4 to 6 mm. wide, smooth to rough above, keeled and rough at least near tip below, margins rough and hyaline. *Inflorescence*—a narrow panicle with flexuous, feathery branches. Massachusetts south. Dune sand along coast.

7b. Plant not found on dune sand 8

8a. Ligule ciliate

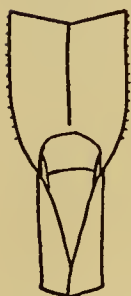
167. *Andropogon scoparius*—Little Bluestem



Leaves folded in bud-shoot; *sheath* distinctly flattened, mostly smooth, may be sparsely short hairy or hairy along margins, split with overlapping margins sometimes hairy; *auricles* absent; *collar* narrow to broad, may be divided or hairy; *ligule* membranous, 1 to 2 mm. long, truncate to rounded, ciliate; *blade* to 8 mm. wide, mostly rough above and may be hairy near base, keeled and smooth to rough below, margins rough and occasionally long hairy near base. *Inflorescence*—a narrow panicle with flexuous, feathery branches. Throughout. Dry hills and fields.

8b. Ligule not ciliate

168. *Andropogon ternarius*—Silver Beardgrass



Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, often purplish, split with overlapping hyaline margins; *auricles* absent; *collar* mostly narrow, divided, may have a few long hairs on margins; *ligule* membranous, 1 to 1.6 mm. long, rounded; *blade* to 7 mm. wide, smooth to rough above and sometimes long hairy, smooth to slightly rough and keeled below, margins mostly rough but may be long hairy at least near base. *Inflorescence*—a narrow panicle with silvery to creamy or grayish, feathery branches. Delaware south. Dry sandy soil.

GROUP 13

1a. Plants growing in wet places and shallow water 2

1b. Plants not generally found in wet places 5

2a. Ligule 3 mm. or less long

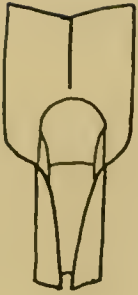
169. *Glyceria canadensis*—Rattlesnake Mannagrass



Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth to rough, split with hyaline margins; *auricles* absent; *collar* narrow to medium broad, divided; *ligule* membranous, 2 to 3 mm. long, truncate to rounded; *blade* 5 to 10 mm. wide, smooth to rough above and below, keeled below, margins smooth to somewhat rough and hyaline. *Inflorescence*—an open panicle with branches distant and drooping. Throughout. Bogs and wet places.

2b. Ligule more than 3 mm. long 3

3a. Ligule to 4 or 5 mm. long

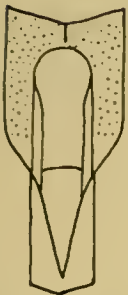


170. *Glyceria striata*—Fowl Mannagrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth to rough, split with hyaline margins; *auricles* absent; *collar* narrow to broad, may be divided; *ligule* membranous, 2 to 5 mm. long, rounded to acuminate; *blade* 5 to 10 mm. wide, smooth to slightly rough above, smooth and keeled below, margins smooth to rough, tip generally boat-shaped. *Inflorescence*—an open, nodding panicle. Throughout. Moist meadows and wet places.

3b. Ligule to 8 or 10 mm. long 4

4a. Blade 3 to 6 mm. wide



171. *Glyceria acutiflora*—Creeping Mannagrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split part way with hyaline margins; *auricles* absent; *collar* narrow, divided; *ligule* membranous, 4 to 10 mm. long, rounded to acuminate; *blade* 3 to 6 mm. wide, slightly rough above, smooth and keeled below, margins smooth. *Inflorescence*—a narrow panicle with stiff branches bearing 1 to 3 spikelets. New Hampshire south. Wet soil and shallow water.

4b. Blade 7 to 12 mm. wide



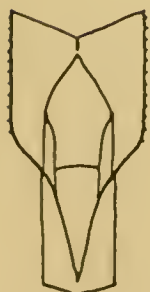
172. *Glyceria septentrionalis*—Eastern Mannagrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, split part way with hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 4 to 8 mm. long, acute; *blade* 7 to 12 mm. wide, rough above, keeled and smooth below at least near base, margins rough. *Inflorescence*—a somewhat open panicle with a few long, slender branches. Throughout. Wet places and shallow water.

5a. Blade usually not more than 5 mm. wide, tip boat-shaped . . . 6

5b. Blade 6 to 12 mm. wide, tip not boat-shaped

173. *Dactylis glomerata*—Orchard Grass



Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth to somewhat rough or rarely short hairy, mostly split part way only with hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 3 to 10 mm. long, mostly acuminate; *blade* 6 to 12 mm. wide, mostly smooth near base and rough near tip above and below, keeled below, margins rough. *Inflorescence*—a panicle with spikelets crowded in dense clusters at end of the few, stiff branches. Common throughout. Fields, meadows and waste places.

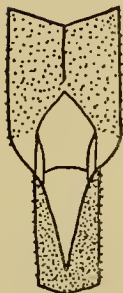
6a. Blade tapering to a narrow boat-shaped tip 7

6b. Blade not tapering (parallel-sided), tip abruptly boat-shaped



174. *Poa annua*—Annual Bluegrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth, mostly split part way with hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* membranous, 1 to 3 mm. long, acute; *blade* to 4 mm. wide, smooth above and below, margins mostly smooth but rough near tip. *Inflorescence*—a small open, few-branched panicle. Common throughout. Lawns, pastures, open ground and waste places.



7a. Sheath rough and split part way only

175. *Poa trivialis*—Rough Bluegrass

Leaves folded in bud-shoot; *sheath* distinctly flattened, rough, split part way; *auricles* absent; *collar* broad, divided; *ligule* membranous, 2 to 6 mm. long, acute, sometimes ciliate; *blade* 2 to 5 mm. wide, at least slightly rough above, keeled and smooth to rough below, margins rough at least near boat-shaped tip. *Inflorescence*—an oblong, open panicle. Throughout. Moist places.



7b. Sheath smooth to slightly rough and split to base

176. *Poa palustris*—Fowl Bluegrass

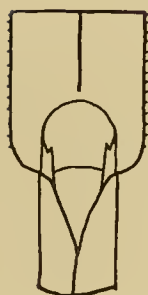
Leaves folded in bud-shoot; *sheath* distinctly flattened, smooth to slightly rough, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad to broad, divided; *ligule* membranous, 2 to 6 mm. long, rounded to acute; *blade* 2 to 5 mm. wide (occasionally to 7 mm.), smooth to rough above and below, keeled below and sometimes glossy, margins smooth to rough and sometimes minutely hairy. *Inflorescence*—an open, nodding, yellowish-green or purplish panicle. Throughout. Meadows and moist open ground.

GROUP 14

1a. Ligule notched near front on one or both sides

177. *Phleum pratense*—Timothy

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad to broad, may be divided, sometimes oblique; *ligule* membranous, to 4.5 mm. long, rounded, notched near front at least on one side; *blade* 5 to 10 mm. wide, mostly smooth near base and rough near tip above and below, margins rough. *Inflorescence*—densely flowered, cylindrical, spike-like. Common throughout. Fields and waste places.



1b. Ligule not notched as above 2

2a. Blade not more than 5 mm. wide 3

2b. Blade more than 5 mm. wide 5

3a. Blade rough above and below 4

3b. Blade smooth to very slightly rough above and below

178. *Alopecurus carolinianus*—Field Foxtail

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, divided; *ligule* membranous, to 4 or 5 mm. long, rounded to acuminate; *blade* to 4 mm. wide, smooth to slightly rough above and below, margins slightly rough to rough. *Inflorescence*—soft, dense, cylindrical, spike-like. Long Island south. Moist ground and wet places.



4a. Blade 1.3 to 2 in. long

179. *Agrostis hiemalis*—Spring Hairgrass

Leaves rolled in bud-shoot; *sheath* round, smooth to rough, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, mostly divided, generally purple; *ligule* membranous, to 4 mm. long, rounded to acute, lacerate; *blade* to 3.5 mm. wide, rough above and below and on margins. *Inflorescence*—a purplish, spreading, slender-branched panicle. Massachusetts south. Open ground, fields and waste places.



4b. Blade 3 to 8 in. long

180. *Agrostis scabra*—Fly-away Grass

Leaves rolled in bud-shoot; *sheath* round, somewhat rough, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* membranous, to 5 mm. long, rounded to acute, lacerate; *blade* to 5 mm. wide, rough above and below and on margins. *Inflorescence*—a very diffuse, purple to green panicle. Throughout. Fields and meadows.



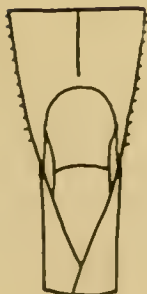
5a. Plants with creeping rhizomes 6

5b. Plants without creeping rhizomes 7

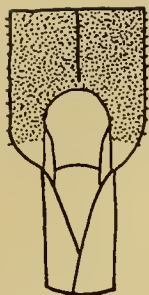
6a. Blade tapering to a narrow base

181. *Sorghastrum nutans*—Indian Grass

Leaves rolled in bud-shoot; *sheath* round, smooth, frequently hairy near base or at nodes, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, may be divided; *ligule* membranous, 3 to as much as 10 mm. long, rounded, may be 1- or 2-notched, mostly hairy on back, sometimes ciliate; *blade* 5 to 10 mm. wide, tapering to a narrow base, smooth to rough above and below, keeled below, margins rough. *Inflorescence*—a narrow, yellowish or reddish-brown panicle. Throughout. Waste places.



6b. Blade not tapering to a narrow base



182. *Agrostis alba*—Redtop

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided, may be oblique, sometimes minutely hairy; *ligule* membranous, to about 5 mm. long, rounded to acute, may be hairy on back; *blade* to 10 mm. wide, rough above and below, keeled below, margins rough and hyaline. *Inflorescence*—a reddish spreading panicle. Common throughout. Meadows, pastures, lawns and waste places.

7a. Leaves folded in bud-shoot

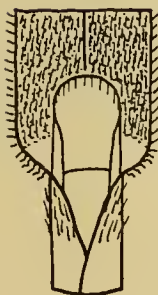


183. *Poa palustris*—Fowl Bluegrass

Leaves folded in bud-shoot; *sheath* round, keeled, smooth to slightly rough, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided; *ligule* membranous, to 9 mm. long, acute; *blade* to 9 mm. wide, smooth to somewhat rough above and below, keeled and sometimes glossy below, margins smooth to rough, tip narrowly boat-shaped. *Inflorescence*—an open, nodding, yellowish-green or purplish panicle. Throughout. Meadows and moist open ground.

7b. Leaves rolled in bud-shoot 8

8a. Collar hairy on margins



184. *Anthoxanthum odoratum*—Sweet Vernalgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, frequently hairy near top, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, mostly divided, hairy on margins; *ligule* membranous, to as much as 9 mm. long, mostly rounded, lacerate or toothed, may be short ciliate; *blade* to 10 mm. wide, rough and mostly short hairy above, mostly short hairy below, margins mostly short hairy. *Inflorescence*—short, narrow, brownish-yellow, spike-like. Throughout. Meadows, pastures and waste places.

8b. Collar not hairy on margins 9

9a. Blade rough above and below



185. *Agrostis perennans*—Autumn Bent

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, may be indistinct; *ligule* membranous, to 6 mm. long, rounded to acute; *blade* to 7 mm. wide, rough above and below, margins rough and hyaline. *Inflorescence*—a pale to tawny, open panicle. Throughout. Open ground and old fields.

9b. Blade smooth above and below

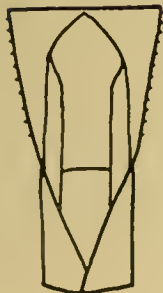


186. *Cinna arundinacea*—Stout Woodreed

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad; *ligule* membranous, to 6 mm. long, rounded to acute; *blade* 5 to 8 mm. wide, smooth above with a few long hairs near base, smooth and keeled below, margins smooth to slightly rough and hyaline. *Inflorescence*—a many-flowered, nodding, grayish-green panicle with slender branches. Throughout. Moist places mostly in woods.

GROUP 15

1a. Ligule 10 mm. or more long



187. *Zizania aquatica*—Annual Wildrice

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 10 to 17 mm. long, acute; *blade* 15 to 30 mm. wide, smooth above and below, midrib prominent below, margins rough and hyaline. *Inflorescence*—a large, open, unisexual panicle. Throughout. Usually in shallow water.

1b. Ligule less than 10 mm. long 2

2a. Plants found only on sandy seashores and coast dunes



188. *Panicum amarum*—Seaside Panicum

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hairy margins; *auricles* absent; *collar* broad, reddish; *ligule* membranous, 2 to 4 mm. long, ciliate; *blade* 10 to 12 mm. wide, smooth near base and rough near tip above, smooth below, margins rough and hyaline. *Inflorescence*—a narrow, appressed panicle, one-fourth to one-third entire height of plant. Connecticut south. Sandy seashores and coast dunes.

2b. Plants not found as above 3

3a. Plants with creeping rhizomes 4

3b. Plants without creeping rhizomes 8

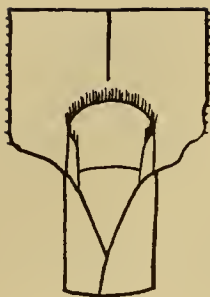
4a. Blade smooth above 5

4b. Blade rough above 7

5a. Blade green except for a conspicuously white midrib

189. *Sorghum halepense*—Johnson Grass

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, sometimes divided, may be hairy; *ligule* membranous, 3 to 6 mm. long, rounded, ciliate; *blade* 20 to 35 mm. wide, smooth above and below at least near base, midrib white above and prominent below, margins generally rough and hyaline. *Inflorescence*—a large, loose, erect panicle. Massachusetts south. Open ground, fields and waste places.

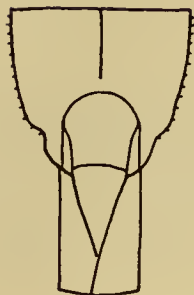


5b. Blade not as above 6

6a. Blade green

190. *Phalaris arundinacea*—Reed Canarygrass

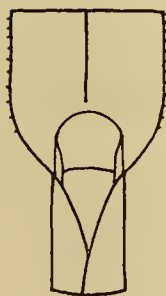
Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, may be divided; *ligule* membranous, 3 to 7 mm. long, rounded to acute, occasionally toothed, may be hairy on back; *blade* 10 to 20 mm. wide (occasionally to 30 mm.), smooth to slightly rough and rarely hairy near base above, keeled and smooth to rough below, margins usually rough and rarely short hairy near base. *Inflorescence*—a densely flowered, spreading to narrow panicle. Throughout. Marshes, rivers banks and moist places.



6b. Blade striped with white

191. *Phalaris arundinacea* var. *picta*—Ribbon Grass

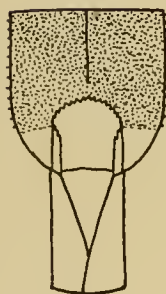
Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* medium broad, divided; *ligule* membranous, 2 to 4 mm. long, rounded; *blade* to 12 mm. wide, smooth near base and rough near tip above, rough below, margins rough. *Inflorescence*—a densely flowered, spreading to narrow panicle. Grown for ornament.

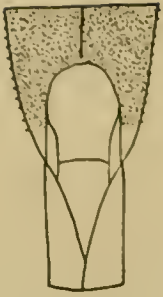


7a. Plants glaucous

192. *Calamagrostis cinnoides*—Reedgrass

Leaves rolled in bud-shoot; *sheath* round, smooth or slightly rough at top, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, may be divided; *ligule* membranous, 3 to 6 mm. long, rounded, generally toothed; *blade* 8 to 15 mm. wide, rough above, keeled and rough below, margins rough and hyaline. *Inflorescence*—a contracted panicle with short, erect branches. Throughout. Bogs and moist ground.





7b. Plants not glaucous

193. Calamagrostis canadensis—Bluejoint

Leaves rolled in bud-shoot; *sheath* round, smooth to slightly rough, split with overlapping margins; *auricles* absent; *collar* medium broad to broad, divided; *ligule* membranous, 3 to 5 mm. long, rounded; *blade* to 12 mm. wide, rough above, keeled and smooth to rough below, margins rough and hyaline. *Inflorescence*—a loose, open, purple-tinged panicle. South to Maryland and West Virginia. Marshes and wet places.

8a. Widest blades 25 mm. or more

194. Sorghum sudanense—Sudan Grass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided, sometimes hairy at base; *ligule* membranous, 3 to 4 mm. long, rounded, ciliate; *blade* 20 to 40 mm. wide, smooth above and below, midrib white above and prominent below, margins smooth to very rough and hyaline. *Inflorescence*—a large, loose, erect panicle. Cultivated for forage.

8b. Widest blades not more than 20 mm. 9

9a. Ligule notched near front on one or both sides

195. Phleum pratense—Timothy

Leaves rolled in bud-shoot; *sheath* round, mostly keeled, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* mostly broad and divided; *ligule* membranous, 3 to 6 mm. long, rounded to acute, notched near front on one or both sides, frequently toothed in center; *blade* to 14 mm. wide, generally smooth near base and rough near tip above and below, keeled below, margins rough and hyaline. *Inflorescence*—densely flowered, cylindrical, spike-like. Common throughout. Fields and waste places.

9b. Ligule not notched as above 10

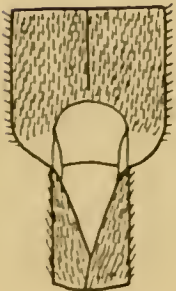
10a. Sheath hairy 11

10b. Sheath not hairy 13

11a. Blade densely velvety hairy above and below

196. Holcus lanatus—Velvet Grass

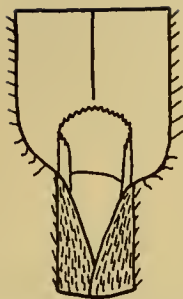
Leaves rolled in bud-shoot; *sheath* loose, round, dense velvety short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, usually divided, hairy; *ligule* membranous, to 3 mm. long, rounded, may be toothed and ciliate; *blade* to 16 mm. wide, velvety short hairy above and below, keeled near base below, margins short hairy. *Inflorescence*—a long, contracted, pale, purple-tinged panicle. Throughout. Open ground, meadows and moist places.



12a. Sheath short hairy

197. *Avena sativa*—Oats

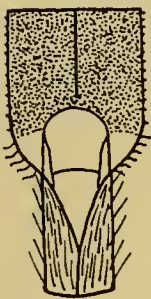
Leaves rolled in bud-shoot; *sheath* round, short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided, sparse hairy on margins; *ligule* membranous, 3 to 4 mm. long, rounded, toothed; *blade* to 14 mm. wide, smooth to rough above, keeled and smooth near base but rough near tip below, margins short hairy and hyaline. *Inflorescence*—a loose, open panicle. Cultivated.



12b. Sheath long hairy

198. *Digitaria sanguinalis*—Common Crabgrass

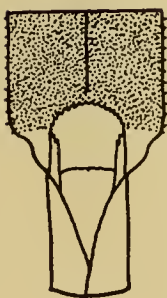
Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, long hairy, split with overlapping hyaline margins; *auricles* absent; *collar* broad, mostly divided, hairy at least on margins; *ligule* membranous, 3 to 4 mm. long, rounded, may be toothed; *blade* to 12 mm. or more wide, rough and sometimes hairy above and below, keeled below, margins rough and occasionally hairy. *Inflorescence*—3 to 12 digitate spike-like branches. Common throughout. Fields, gardens and waste places.



13a. Blade rough above

199. *Avena fatua*—Wild Oats

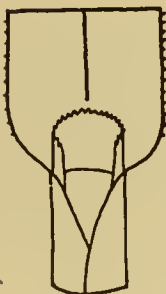
Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided; *ligule* membranous, 3 to 5.5 mm. long, rounded, mostly toothed; *blade* 10 to 20 mm. wide, rough above, smooth near base and rough near tip below with midrib prominent, margins rough and hyaline and in young plants sometimes hairy near base. *Inflorescence*—a loose, open panicle. Rare in Northeast. Cultivated fields and waste places.



13b. Blade smooth above at least near base

200. *Avena sativa*—Oats

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 3 to 4 mm. long, rounded, toothed; *blade* 10 to 14 mm. wide, smooth near base and rough near tip above and below, keeled below, margins rough and hyaline. *Inflorescence*—a loose, open panicle. Cultivated.



GROUP 16

1a. Leaves folded in bud-shoot



201. *Lolium perenne*—Perennial Ryegrass

Leaves folded in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* small; *collar* narrow to medium broad, divided; *ligule* membranous, .6 to 2 mm. long, truncate to rounded; *blade* to 6 mm. wide, smooth to rough above, smooth and glossy and keeled below, margins smooth and hyaline. *Inflorescence*—long, narrow, flat spikes with unawned spikelets placed edge to rachis. Cultivated throughout.

1b. Leaves rolled in bud-shoot 2

2a. Plants with white creeping rhizomes

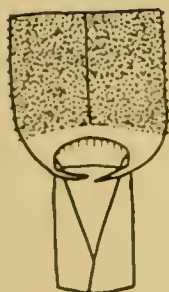
202. *Agropyron repens*—Quackgrass



Leaves rolled in bud-shoot; *sheath* round, mostly short hairy, split with overlapping hyaline margins; *auricles* small; *collar* mostly medium broad, may be divided, sometimes minutely hairy; *ligule* membranous, mostly .2 to .4 mm. long but occasionally to 1 mm., truncate to rounded, may be finely toothed or ciliate; *blade* 5 to 12 mm. wide, rough and mostly hairy above, mostly keeled and smooth or short hairy below, margins rough (rarely short hairy) and hyaline. *Inflorescence*—a long, narrow spike with spikelets placed side to rachis. Common throughout. Fields, meadows and waste places.

2b. Plants without creeping rhizomes 3

3a. Plant glaucous, a cultivated winter annual



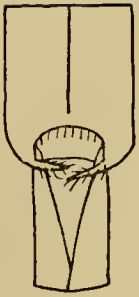
203. *Secale cereale*—Rye

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* small; *collar* mostly broad; *ligule* membranous, 1 to 1.6 mm. long (Tetra Petkus, mostly longer), rounded, lacerate, may be ciliate; *blade* 8 to 18 mm. wide, glaucous above and below, rough above, smooth and keeled below at least near base, margins rough and hyaline. *Inflorescence*—a narrow, crowded spike. Cultivated winter annual.

3b. Plants not glaucous 4

4a. Auricles hairy 5

4b. Auricles not hairy 6



5a. Blade margins smooth

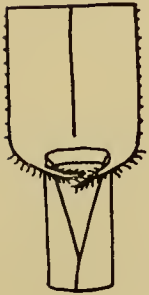
204. *Triticum aestivum*—Wheat

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* small, mostly long hairy; *collar* broad; *ligule* membranous, 1 to 1.6 mm. long, rounded, lacerate, may be ciliate; *blade* 7 to 11 mm. wide, smooth near base and rough near tip above, smooth below and keeled near base, margins smooth and hyaline. *Inflorescence*—a crowded, thick spike. Cultivated winter annual.

5b. Blade margins rough

205. *Festuca arundinacea*—Tall Fescue

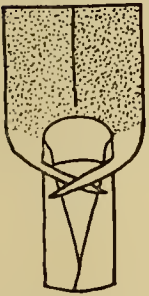
Leaves rolled in bud-shoot; *sheath* round, smooth or occasionally rough, split with overlapping hyaline margins; *auricles* small, short hairy; *collar* broad, divided, mostly hairy on margins; *ligule* membranous, to 1.2 mm. long but mostly .4 mm. or less, truncate; *blade* mostly 5 to 10 mm. wide (rarely to 15 mm.), smooth to rough above, glossy below and smooth at least near base with a prominent midrib, margins rough and hyaline. *Inflorescence*—an erect or nodding, somewhat contracted panicle. More common in southern half of region. Meadows and damp waste places.



6a. Auricles large and long

206. *Hordeum vulgare*—Barley

Leaves rolled in bud-shoot; *sheath* round, smooth or hairy, split with overlapping hyaline margins; *auricles* large and long; *collar* broad, divided; *ligule* membranous, 1.5 to 3 mm. long, rounded; *blade* 8 to 13 mm. wide, rough above at least near tip, keeled and smooth below at least near base, margins smooth and hyaline. *Inflorescence*—a dense, erect, thick spike. Cultivated winter annual.



6b. Auricles small and slender 7

7a. Blade midrib white above, growing in large bunches

207. *Miscanthus sinensis*—Eulalia

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* short and blunt; *collar* broad, divided, hairy on margins; *ligule* membranous, 2.5 to 3 mm. long, rounded, ciliate; *blade* 8 to 18 mm. wide, smooth near base and rough near tip above and mostly with a few long hairs near base, smooth below with a prominent midrib (rarely sparse hairy), margins very rough and hyaline. *Inflorescence*—a fan-shaped, silky panicle. Cultivated for ornament, growing wild in some localities.



7b. Blade midrib not white above 8

8a. Blade glossy below 9

9a. Ligule 1 to 2 mm. long

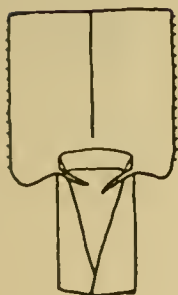


208. *Lolium multiflorum*—Annual Ryegrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* small; *collar* broad, may be divided; *ligule* membranous, 1 to 2 mm. long, truncate to rounded; *blade* mostly 3 to 7 mm. wide (rarely to 10 mm.), smooth above, smooth and glossy below, margins smooth and hyaline. *Inflorescence*—long, narrow flat spikes with awned spikelets placed edge to rachis. Cultivated throughout.

9b. Ligule generally less than 1 mm. long 10

10a. Blade 10 mm. or more wide



209. *Hystrix patula*—Bottlebrush

Leaves rolled in bud-shoot; *sheath* round, smooth to hairy, split with overlapping margins hyaline or one hairy; *auricles* small; *collar* narrow to broad; *ligule* membranous, .2 to .6 mm. long, truncate to rounded; *blade* 10 to 25 mm. wide, smooth to rough above and below, keeled and glossy below, margins rough and hyaline. *Inflorescence*—a loosely flowered, bristly, erect or nodding spike. Throughout. Infrequent in moist places.

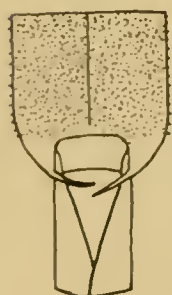
10b. Blade less than 10 mm. wide



210. *Festuca elatior*—Meadow Fescue

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* small; *collar* broad, mostly divided; *ligule* membranous, .2 to 1 mm. long, truncate; *blade* 3 to 9 mm. wide, smooth to rough above, smooth and glossy below, margins rough. *Inflorescence*—an erect or nodding, somewhat contracted panicle. Throughout. Meadows and waste places.

11a. Ligule to at least 1 mm. long



211. *Elymus canadensis*—Canada Wild-rye

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins hyaline or one hairy; *auricles* small; *collar* broad, divided; *ligule* membranous, to 1.5 mm. long, truncate, may be toothed and ciliate; *blade* 8 to 20 mm. wide, at least slightly rough above, keeled and smooth below at least near base, margins rough. *Inflorescence*—a dense, bristly, nodding or drooping spike. Massachusetts south. River banks, open ground and sandy soil.

11b. Ligule less than 1 mm. long 12



12a. Blade hairy above

212. *Elymus villosus*—Hairy Wild-rye

Leaves rolled in bud-shoot; *sheath* round, smooth, split with one overlapping margin hyaline and one hairy; *auricles* small; *collar* medium broad, divided; *ligule* membranous, about .4 mm. long, truncate; *blade* 5 to 10 mm. wide, short hairy above and below, keeled near base below, margins rough and hyaline. *Inflorescence*—a dense, bristly, drooping spike. Vermont south. Shady and mostly damp places.

12b. Blade not hairy above

213. *Elymus riparius*—Riverbank Wild-rye

214. *Elymus virginicus*—Virginia Wild-rye

Leaves rolled in bud-shoot; *sheath* round, smooth or sometimes rough, rarely short hairy, split with overlapping margins both hyaline or both hairy or one hairy; *auricles* small; *collar* broad, divided; *ligule* membranous, .2 to .6 mm. long, truncate; *blade* 5 to 14 mm. wide, rough above, keeled and smooth to rough below, margins rough and hyaline. *Inflorescence*—a dense, bristly, erect spike. Throughout. Moist ground and along streams.



GROUP 17

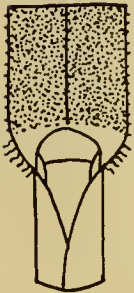
1a. Plant with creeping rhizomes 2

1b. Plant without creeping rhizomes 3

2a. Collar hairy on margins

215. *Muhlenbergia frondosa*—Wirestem Muhly

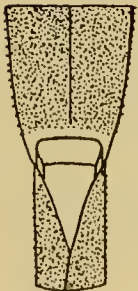
Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, hairy on margins; *ligule* membranous, about 1 mm. long, rounded; *blade* to 8 mm. wide, rough above, rough below at least near tip, margins rough. *Inflorescence*—numerous, slender panicles. Throughout. Not common. Low ground and waste places.



2b. Collar not hairy on margins

216. *Leersia virginica*—Whitegrass

Leaves rolled in bud-shoot; *sheath* somewhat flattened, rough and hairy at base, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad; *ligule* membranous, .6 to 1 mm. long, truncate, may be toothed; *blade* to 10 mm. wide, rough above and below, sometimes short hairy below, margins rough. *Inflorescence*—an open panicle with capillary branches distant. Throughout. Moist places.



3a. Collar hairy at least on margins 4

3b. Collar not hairy 6

4a. Ligule minute, not more than .2 mm. long 5

4b. Ligule .4 to .8 mm. long



217. *Muhlenbergia schreberi*—Nimblewill

Leaves rolled in bud-shoot; *sheath* somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, hairy on margins; *ligule* membranous, .4 to .8 mm. long, truncate to rounded; *blade* to 7 mm. wide, rough above and below, margins rough and hyaline. *Inflorescence*—numerous slender panicles. New Hampshire south. Lawns, pastures and waste places.

5a. Blade short hairy above and below



218. *Microstegium vimineum* var. *imberbe*—Basketgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, hairy at top, split with one overlapping margin hairy and one hyaline; *auricles* absent; *collar* narrow, hairy on margins; *ligule* membranous, about .2 mm. long, truncate, very short ciliate; *blade* 3 to 10 mm. wide (mostly to about 5 mm.), short hairy above and below, margins smooth to slightly rough. *Inflorescence*—1 to 6 terminal spike-like branches. Southeastern Pennsylvania south. Shaded banks and roadsides. Infrequent.

5b. Blade not hairy



219. *Sporobolus clandestinus*—Scratch Dropseed

Leaves folded in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, hairy; *ligule* membranous, minute; *blade* to 5 mm. wide, smooth to slightly rough above, smooth and glossy below, margins smooth to slightly rough. *Inflorescence*—a narrow, contracted panicle. Connecticut south. Sandy fields.

6a. Plant with short stolons



220. *Agrostis tenuis*—Colonial Bent

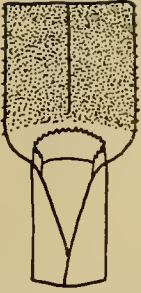
Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided and hairy on margins; *ligule* membranous, to 1 mm. long, truncate; *blade* 3 to 5 mm. wide, smooth to rough above and below, margins rough and hyaline. *Inflorescence*—an open delicate panicle. Common throughout. Pastures, lawns and waste places.

6b. Plant without stolons 7

7a. Widest blades 8 to 10 mm. wide (rarely to only 7 mm.) 8

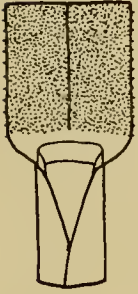
7b. Widest blades to 6 mm., rarely more 9

8a. Stems below ground with a series of bulbs



221. Arrhenatherum elatius var. bulbosum—Bulbous Oatgrass

Leaves rolled in bud-shoot; *sheath* round, smooth or sometimes short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, to 1 mm. long, rounded, toothed; *blade* to 10 mm. wide, rough and sometimes sparsely short hairy above, smooth below, margins rough. *Inflorescence*—a narrow, pale or purplish, shining panicle. Delaware, West Virginia south. Occasionally a weed in fields.



8b. Stems below ground without a series of bulbs

222. Arrhenatherum elatius—Tall Oatgrass

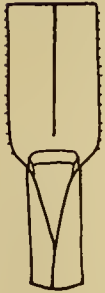
Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, .4 to .8 mm. long, truncate; *blade* to 10 mm. wide, rough above, smooth below, margins rough. *Inflorescence*—a narrow, pale or purplish, shining panicle. Throughout. Meadows, open ground and waste places.

9a. Plants densely tufted, perennial 10

9b. Plants not densely tufted, annual

223. Hordeum pusillum—Little Barley

Leaves rolled in bud-shoot; *sheath* round, smooth or short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, may appear divided; *ligule* membranous, .2 to .6 mm. long (occasionally to 1 mm.), truncate; *blade* 3 to 6 mm. wide smooth to somewhat rough or sometimes short hairy above, smooth or occasionally short hairy below, margins rough or short hairy. *Inflorescence*—a dense, short-bristly, flattened-cylindric spike. Delaware south. Open ground.



10a. Sheath thin, often shredded

224. Hordeum brachyantherum—Meadow Barley

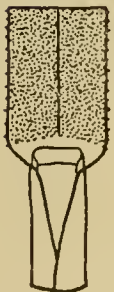
Leaves rolled in bud-shoot; *sheath* round, smooth or short hairy, split with overlapping margins hyaline or hairy; *auricles* absent; *collar* narrow; *ligule* membranous, .4 to .6 mm. long, truncate; *blade* mostly 3 to 6 mm. wide, rough above, smooth to rough below, margins rough. *Inflorescence*—a dense, short-bristly, flattened-cylindric spike. Maine to New York. Meadows, bottom lands, salt marshes. Not common.



10b. Sheath not as above

225. Hordeum jubatum—Squirrel-tail Barley

Leaves rolled in bud-shoot; *sheath* round, smooth or short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, may be divided; *ligule* membranous, .4 to 1 mm. long, truncate to rounded, may be toothed or ciliate; *blade* 3 to 6 mm. wide, rough or short hairy above, smooth or rough or occasionally short hairy below, margins rough. *Inflorescence*—a dense, very bushy, nodding spike. South to Maryland. Meadows and waste places.



GROUP 18

- 1a. Sheath split part way only 2
 1b. Sheath split to near base 3

2a. Ligule to 1.8 mm. long

226. *Bromus japonicus*—Japanese Chess

Leaves rolled in bud-shoot; *sheath* round, densely soft white hairy, split part way with hyaline margins; *auricles* absent; *collar* narrow to broad, hairy at least on margins; *ligule* membranous, .8 to 1.8 mm. long, rounded, toothed or lacerate, sometimes ciliate; *blade* mostly 5 to 8 mm. wide, dense short hairy above and below, margins hairy. *Inflorescence*—an open, diffuse, somewhat drooping panicle. Vermont south. Common. Waste places.



2b. Ligule 2 mm. or more long

227. *Bromus tectorum*—Downy Chess

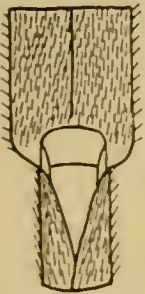
Leaves rolled in bud-shoot; *sheath* round, densely soft white hairy, split part way; *auricles* absent; *collar* narrow to medium broad, divided, mostly hairy; *ligule* membranous, 1.5 to 3 mm. long, rounded to acute, may be toothed and ciliate; *blade* 5 to 10 mm. wide, hairy above and below and on margins. *Inflorescence*—a rather dense, soft, drooping, often purple panicle. Throughout. Waste places.



3a. Blade densely velvety hairy above and below

228. *Holcus lanatus*—Velvet Grass

Leaves rolled in bud-shoot; *sheath* loose, round, dense velvety short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad, usually divided, hairy; *ligule* membranous, to 3 mm. long, truncate to rounded, may be toothed and ciliate; *blade* mostly 5 to 10 mm. wide, dense velvety short hairy above and below, margins short hairy. *Inflorescence*—a long, contracted, pale, purple-tinged panicle. Throughout. Open ground, meadows and moist places.



3b. Blade not as above 4

4a. Plant with short creeping rhizomes

229. *Anthoxanthum odoratum*—Sweet Vernalgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, frequently hairy near top, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided, hairy on margins; *ligule* membranous, mostly 1 to 2.5 mm. long, but at times to as much as 9 mm., rounded, may be lacerate or toothed or ciliate; *blade* to 10 mm. wide, mostly hairy above at least near base, smooth or short hairy below, margins very variable. *Inflorescence*—short, narrow, brownish-yellow, spike-like. Throughout. Meadows, pastures and waste places.

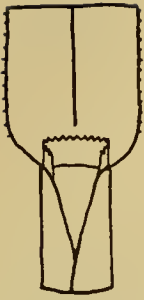


4b. Plant without creeping rhizomes 5

5a. Blade smooth above and below

230. Arrhenatherum elatius—Tall Oatgrass

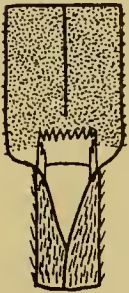
Leaves rolled in bud-shoot; *sheath* round, smooth or sometimes sparsely short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 1 to 2.5 mm. long, truncate, toothed; *blade* to 10 mm. wide, smooth above and below, margins slightly rough. *Inflorescence*—a narrow, pale or purplish, shining panicle. Throughout. Meadows, open ground and waste places.



5b. Blade rough or short hairy on one or both surfaces

231. Sphenopholis obtusata—Prairie Wedgegrass

Leaves rolled in bud-shoot; *sheath* round, short hairy, split with overlapping margins hyaline or sometimes hairy; *auricles* absent; *collar* narrow, may be divided; *ligule* membranous, 1 to 2 mm. long, truncate to rounded, mostly toothed; *blade* 3 to 8 mm. wide, slightly rough to rough or short hairy above and below and on margins. *Inflorescence*—a dense, erect, spike-like panicle. Throughout. Old fields and moist ground.



GROUP 19

1a. Blade 4 mm. or less wide 2

1b. Blade more than 4 mm. wide 4

2a. Plant with creeping rhizomes or stolons 3

2b. Plant without rhizomes or stolons

232. Agrostis perennans—Autumn Bent

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to medium broad; *ligule* membranous, to 2 mm. long, rounded to acute; *blade* to 4 mm. wide, rough above and below and on margins. *Inflorescence*—a pale to tawny, open panicle. Throughout. Open ground and old fields.



3a. Ligule 2 to 3 mm. long

233. Agrostis palustris—Creeping Bent

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad; *ligule* membranous, 1 to 3 mm. long, rounded to acute, may be toothed; *blade* 2 to 4 mm. wide, smooth to rough above and below and on margins. *Inflorescence*—a narrow, dense, pale or purple panicle. Marshes along coast. Also cultivated for putting greens.





3b. Ligule not more than 1.2 mm. long

234. Agrostis tenuis—Colonial Bent

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, may be divided; *ligule* membranous, to 1.2 mm. long, truncate; *blade* to 4 mm. wide, rough above, smooth below, margins rough. *Inflorescence*—an open, delicate panicle. Common throughout. Pastures, lawns and waste places.

4a. Plants found only on coastal sand dunes

235. Ammophila breviligulata—American Beachgrass

Leaves rolled in bud-shoot; *sheath* round, smooth to slightly rough, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided; *ligule* membranous, 1 to 3 mm. long, rounded, may be short ciliate; *blade* 5 to 10 mm. wide, generally stiff, rough above, smooth and glossy below, margins smooth and hyaline and generally rolled inward. *Inflorescence*—pale, dense, nearly cylindrical, spike-like. Maine south. Sand dunes along coast.

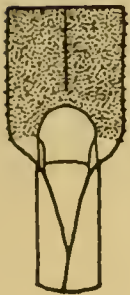


4b. Plants not found on coastal sand dunes 5

5a. Plants with creeping rhizomes

236. Agrostis alba—Redtop

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided; *ligule* membranous, to 3 mm. long, rounded, may be toothed; *blade* 4 to 10 mm. wide, mostly rough above and below, margins rough and hyaline. *Inflorescence*—a reddish, spreading panicle. Common throughout. Meadows, pastures, lawns and waste places.

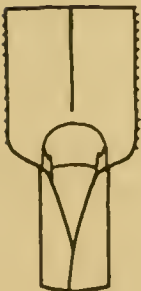


5b. Plants without creeping rhizomes 6

6a. Ligule notched near front on one or both sides

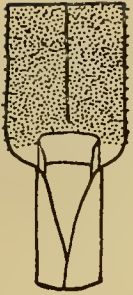
237. Phleum pratense—Timothy

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* mostly broad and divided; *ligule* membranous, to 2 mm. long, rounded, notched near front on one or both sides; *blade* 5 to 10 mm. wide, smooth above and below at least near base, margins rough and hyaline. *Inflorescence*—densely flowered, cylindrical, spike-like. Common throughout. Fields and waste places.



6b. Ligule not notched as above 7

7a. Blade 4 to 6 inches long

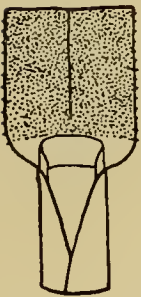


238. Alopecurus pratensis—Meadow Foxtail

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles*, absent; *collar* medium broad, mostly divided; *ligule* membranous, 1 to 3 mm. long, truncate to rounded, may be toothed and ciliate; *blade* 5 to 9 mm. wide, rough above, smooth to slightly rough below, margins rough and hyaline. *Inflorescence*—soft, dense, cylindrical, spike-like. South to Delaware. Fields and waste places.

7b. Blade to 20 inches long 8

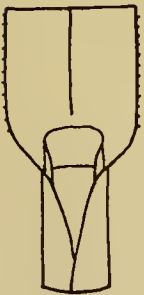
8a. Stems below ground with a series of bulbs



239. Arrhenatherum elatius var. bulbosum—Bulbous Oatgrass

Leaves rolled in bud-shoot; *sheath* round, smooth or sometimes short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided; *ligule* membranous, to 1.4 mm. long, truncate, may be very short ciliate; *blade* to 10 mm. wide rough and sometimes sparsely short hairy above, smooth below at least near base, margins rough. *Inflorescence*—a narrow, pale or purplish, shining panicle. Delaware, West Virginia south. Occasionally a weed in fields.

8b. Stems below ground without a series of bulbs



240. Arrhenatherum elatius—Tall Oatgrass

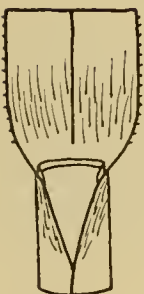
Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, may be divided; *ligule* membranous, to 2.5 mm. long, truncate to rounded, may be toothed and ciliate; *blade* 5 to 10 mm. wide, smooth to rough or sometimes short hairy above, smooth to rough below, margins rough and hyaline. *Inflorescence*—a narrow, pale or purplish, shining panicle. Throughout. Meadows, open ground and waste places.

GROUP 20

1a. Ligule .6 mm. or less long 2

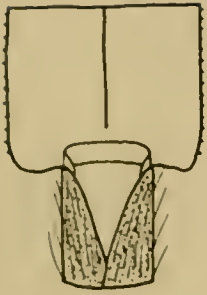
1b. Ligule 1 mm. or more long 3

2a. Blade not more than 11 mm. wide



241. Eragrostis spectabilis—Purple Lovegrass

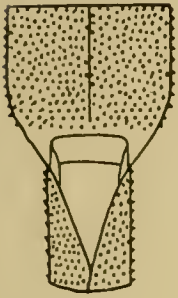
Leaves rolled in bud-shoot; *sheath* round, hairy at least at throat, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided; *ligule* membranous, to .2 mm. long; *blade* to 11 mm. wide, long hairy near base above, smooth below, margins rough and hyaline. *Inflorescence*—a diffuse, bright purple panicle two-thirds entire height of plant. Throughout. Sandy soil.



2b. Blade to 20 mm. or more wide

242. *Hystrix patula*—Bottlebrush

Leaves rolled in bud-shoot; *sheath* round, rough and long hairy, split with overlapping margins hyaline or one hairy; *auricles* absent; *collar* narrow to broad; *ligule* .2 to .6 mm. long, truncate; *blade* to 25 mm. wide, smooth above, smooth below at least near base, margins rough and hyaline. *Inflorescence*—a loosely flowered, bristly, erect or nodding spike. Throughout. Infrequent in moist places.



3a. Blade very rough above and below and on margins

243. *Leersia oryzoides*—Rice Cut-grass

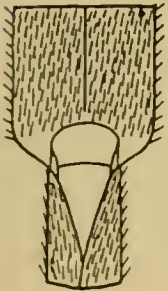
Leaves rolled in bud-shoot; *sheath* round, very rough, split with overlapping margins hyaline or one hairy; *auricles* absent; *collar* broad, may be divided, sometimes short hairy; *ligule* membranous, .8 to 1.5 mm. long, truncate; *blade* to 14 mm. wide, very rough above and below and on margins. *Inflorescence*—a spreading flexuous-branched panicle. Throughout. Marshes, riverbanks and wet places.

3b. Blade not very rough 4

4a. Sheath and blade dense velvety hairy

244. *Holcus lanatus*—Velvet Grass

Leaves rolled in bud-shoot; *sheath* loose, round, dense velvety hairy, split with overlapping margins; *auricles* absent; *collar* narrow to medium broad, usually divided, hairy; *ligule* membranous, 1.5 to 2 mm. long, rounded; *blade* to 12 mm. dense velvety short hairy above and below, keeled below, margins short hairy. *Inflorescence*—a long, contracted, pale, purple-tinged panicle. Throughout. Open ground, meadows and moist places.

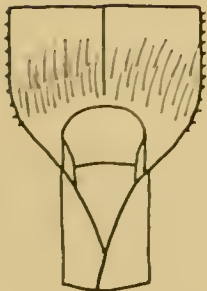


4b. Sheath and blade not dense velvety hairy 5

5a. Blade blue-green (glaucous) above and below

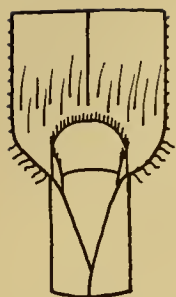
245. *Paspalum floridanum* var. *glabratum*—Smooth Florida Paspalum

Leaves rolled in bud-shoot; *sheath* somewhat flattened, smooth, split with overlapping margins at times hairy; *auricles* absent; *collar* narrow to broad, sometimes hairy on margins; *ligule* membranous, 1 to 2 mm. long, rounded, may be ciliate; *blade* to 25 mm. wide, glaucous above and below, long hairy near base above, smooth below with midrib prominent, margins rough and hyaline. *Inflorescence*—2 to 5 one-sided, spike-like branches with flat, round to oval seed. New Jersey south. Brackish marshes and low sandy ground.

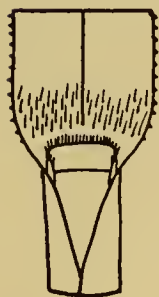


5b. Blade not blue-green 6

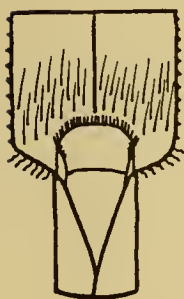
6a. Growing in large bunches, blades to 40 inches long 7

7a. Blade green except for midrib white above**246. Miscanthus sinensis—Eulalia**

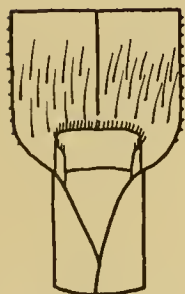
Leaves rolled in bud-shoot; *sheath* round, smooth or occasionally short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* broad, hairy on margins; *ligule* membranous, 1 to 2 mm. long rounded, ciliate; *blade* 8 to 18 mm. wide, smooth near base and rough near tip above with a few long hairs near base, smooth below, midrib white above and prominent below, margins rough to very rough and hyaline. *Inflorescence*—a fan-shaped, silky panicle. Cultivated for ornament, growing wild in some localities.

7b. Blade with yellow or yellowish-white markings 8**8a. Blade with yellow or yellowish-white stripes****247. Miscanthus sinensis var. variegatus—Striped Eulalia**

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow; *ligule* membranous, about 1 mm. long, truncate, ciliate; *blade* to 14 mm. wide, smooth above with yellow or yellowish-white stripes and short hairy near base, smooth below, margins very rough. *Inflorescence*—a fan-shaped, silky panicle. Cultivated for ornament.

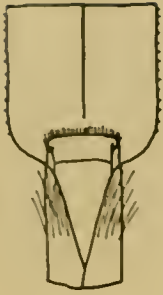
8b. Blades with irregular yellowish cross-bands**248. Miscanthus sinensis var. zebrinus—Zebra Grass**

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth or hairy, split with overlapping margins hyaline or hairy; *auricles* absent; *collar* narrow to broad, divided, hairy on margins; *ligule* membranous, 1 to 1.8 mm. long, rounded, mostly ciliate; *blade* to 18 mm. wide, long hairy near base above with midrib white, and with irregular yellowish cross-bands, smooth below with midrib prominent, margins very rough and hyaline. *Inflorescence*—a fan-shaped, silky panicle. Cultivated for ornament, occasionally growing wild.

9a. Plants of wet land 10**9b. Plants not generally found on wet land 11****10a. Blade rough above, mostly with a few long hairs near base****249. Erianthus contortus—Bent-awn Plumegrass**

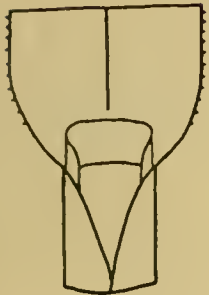
Leaves rolled in bud-shoot; *sheath* round, smooth, sometimes with a few hairs at top, split with overlapping hyaline margins; *auricles* absent; *collar* narrow, divided, may be long hairy on margins; *ligule* membranous, 1 to 2 mm. long, truncate, ciliate; *blade* 10 to 20 mm. wide, sparsely long hairy near base above with midrib whitish or reddish, smooth below with midrib prominent, margins rough and sometimes long hairy. *Inflorescence*—a narrow, dense, silky, brownish panicle. Coastal Plain, Delaware south. Moist sandy land.

10b. Blade smooth or very slightly rough above



250. Erianthus coarctatus—Slender Plumegrass

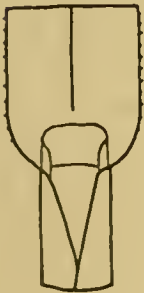
Leaves rolled in bud-shoot; *sheath* somewhat flattened, smooth, long hairy at top and hairy at nodes, split with overlapping margins; *auricles* absent; *collar* broad, hairy; *ligule* membranous, to 1.6 mm. long, truncate, ciliate; *blade* to 15 mm. wide, smooth above and below, midrib whitish to reddish above and prominent below, margins rough and hyaline. *Inflorescence*—a narrow, dense, silky, purplish-brown panicle. Delaware south. Peaty, sandy, moist meadows and margins of swamps.



11a. Blade with midrib conspicuously white above

251. Sorghum sudanense—Sudan Grass

Leaves rolled in bud-shoot; *sheath* round, smooth, may be hairy at base, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 1 to 2 mm. long, truncate to rounded, may be ciliate; *blade* to 25 mm. or more wide, smooth above and below or sometimes sparsely hairy near base above, margins rough and hyaline. *Inflorescence*—a large, loose, erect panicle. Cultivated for forage.



11b. Blade midrib not white above

252. Arrhenatherum elatius—Tall Oatgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad; *ligule* membranous, 1 to 2 mm. long, truncate; *blade* to 12 mm. wide, smooth to rough above, keeled and smooth below at least near base, margins at least slightly rough and hyaline. *Inflorescence*—a narrow, pale or purplish, shining panicle. Throughout. Meadows, open ground and waste places.

GROUP 21

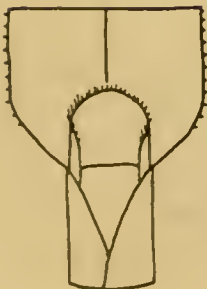
1a. Blade with midrib conspicuously white above 2

1b. Blade midrib not white above 3

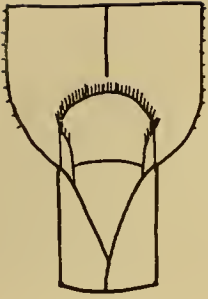
2a. Plant with large creeping rhizomes

253. Sorghum halepense—Johnson Grass

Leaves rolled in bud-shoot; *sheath* round to somewhat flattened, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, may be divided, sometimes hairy; *ligule* membranous, 2 to 3 mm. long, rounded, ciliate; *blade* to 35 mm. wide, smooth above and below at least near base, midrib white above and prominent below, margins generally rough and hyaline. *Inflorescence*—a large, loose, erect panicle. Massachusetts south. Open ground, fields and waste places.



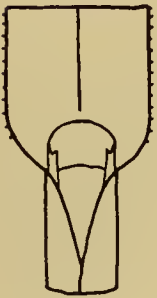
2b. Plant without rhizomes



254. *Sorghum sudanense*—Sudan Grass

Leaves rolled in bud-shoot; *sheath* round, smooth, sometimes hairy at base, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 1 to 3 mm. long, rounded, ciliate, may be toothed; *blade* 20 to 40 mm. wide, smooth above and below, midrib white above and prominent below, margins mostly rough and hyaline. *Inflorescence*—a large, loose, erect panicle. Cultivated for forage.

3a. Ligule notched near front on one or both sides

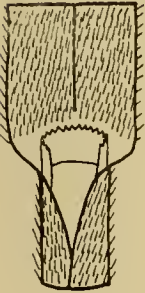


255. *Phleum pratense*—Timothy

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* mostly broad, divided, may be sparsely short hairy on margins; *ligule* membranous, 1 to 3 mm. long, rounded to acute, with a distinct notch near front on one or both sides; *blade* to 14 mm. wide, mostly smooth near base and rough near tip above and below, margins rough. *Inflorescence*—densely flowered, cylindrical, spike-like. Common throughout. Fields and waste places.

3b. Ligule not notched as above 4

4a. Blade densely velvety hairy above and below



256. *Holcus lanatus*—Velvet Grass

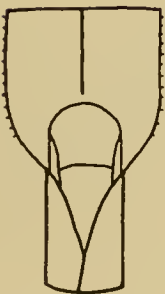
Leaves rolled in bud-shoot; *sheath* loose, round, dense velvety short hairy, split with overlapping hyaline margins; *auricles* absent; *collar* mostly narrow, divided, hairy; *ligule* membranous, 1 to 3 mm. long, truncate to rounded, toothed; *blade* to 14 mm. wide, dense velvety short hairy above and below, keeled below, margins short hairy. *Inflorescence*—a long, contracted, pale, purple-tinged panicle. Throughout. Open ground, meadows and moist places.

4b. Blade not densely velvety hairy 5

5a. Plant with long creeping rhizomes 6

5b. Plant without creeping rhizomes 7

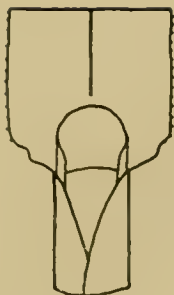
6a. Blade green with white stripes



257. *Phalaris arundinacea* var. *picta*—Ribbon Grass

Leaves rolled in bud-shoot; *sheath* round, smooth to slightly rough, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 2 to 3 mm. long, rounded; *blade* white striped, to 18 mm. wide, smooth near base and somewhat rough near tip above and below, midrib prominent below, margins rough. *Inflorescence*—a densely flowered, spreading to narrow panicle. Cultivated for ornament.

6b. Blade without white stripes



258. *Phalaris arundinacea*—Reed Canarygrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided; *ligule* 2 to 3 mm. long, rounded, occasionally toothed; *blade* 10 to 20 mm. wide, smooth to slightly rough and rarely hairy near base above, keeled and smooth to rough below, margins rough and rarely short hairy near base. *Inflorescence*—a densely flowered, spreading to narrow panicle. Throughout. Marshes, riverbanks and moist places.

7a. Collar hairy on margins

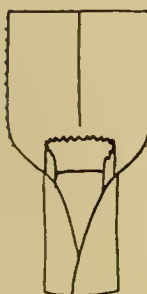


259. *Anthoxanthum odoratum*—Sweet Vernalgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, frequently hairy near top, split with overlapping hyaline margins; *auricles* absent; *collar* narrow to broad, divided, hairy on margins; *ligule* membranous, 2 to 3 mm. long, rounded, may be lacerate or toothed or ciliate; *blade* to 12 mm. wide, mostly hairy above at least near base, smooth or short hairy below, margins very variable. *Inflorescence*—short, narrow, brownish-yellow, spike-like. Throughout. Meadows, pastures and waste places.

7b. Collar not hairy on margins 8

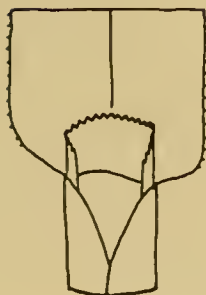
8a. Blades to not more than 12 mm. wide



260. *Arrhenatherum elatius*—Tall Oatgrass

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping margins; *auricles* absent; *collar* broad; *ligule* membranous, 1.5 to 3 mm. long, truncate, toothed, may be short ciliate; *blade* to 12 mm. wide, smooth to rough above, keeled and smooth below, margins at least slightly rough and hyaline. *Inflorescence*—a narrow, pale or purplish, shining panicle. Throughout. Meadows, open ground and waste places.

8b. Blades at least 15 mm. wide



261. *Avena sativa*—Oats

Leaves rolled in bud-shoot; *sheath* round, smooth, split with overlapping hyaline margins; *auricles* absent; *collar* broad, divided; *ligule* membranous, 2 to 3 mm. long, rounded, toothed; *blade* to 20 mm. wide, smooth near base and rough near tip above and below, keeled below, margins rough and hyaline. *Inflorescence*—a loose, open panicle. Cultivated.

GLOSSARY

- Acuminate**—Gradually tapering to a very sharp point.
- Acute**—Sharp-pointed, but less tapering than acuminate.
- Auricle**—Claw-like projections at the base of the blade.
- Awn**—A slender bristle at the end or on the back of the glumes of a grass floret.
- Axillary**—In the angle between a leaf and its stem or between a branch and its axis.
- Axis**—The main stem of a panicle.
- Blade**—The upper, non-clasping part of the leaf above the collar and ligule.
- Bristle-like**—Resembling a bristle. Applied to narrow blades that are rolled or folded.
- Bud-shoot**—The growing uppermost leaf as it emerges from the sheath below.
- Capillary**—Very slender or hairlike.
- Ciliate**—Fringed with hairs on the margin.
- Collar**—The area, mostly lighter in color, on the outside of the grass leaf at the junction of the sheath and blade.
- Contracted**—Said of an inflorescence that is narrow or dense, the branches short or close to axis.
- Decumbent**—Curved upward from a horizontal or inclined base.
- Dense**—Said of an inflorescence in which the spikelets are crowded close together.
- Diffuse**—Open and much branched.
- Digitate**—Arising from the top of stem, finger-like.
- Drooping**—Erect to spreading at base but bending downward above.
- Flexuous**—Bent alternately in opposite directions.
- Fused**—United by normal growth.
- Glaucous**—Covered with a waxy coating that gives a blue-green color.
- Hyaline**—Thin and translucent or transparent.
- Inflorescence**—The flowering part of a plant.
- Keeled**—Angle or ridge on back of sheath or blade usually formed by midrib.
- Lacerate**—Torn or cut at the edge as though frayed.
- Ligule**—A thin membrane or fringe of hairs on the inside of the leaf at the junction of the blade and sheath.
- Loose**—Open, the opposite of dense or compact.
- Node**—The joint of a stem, generally slightly enlarged.
- Panicle**—A compound or branched inflorescence with the lower branches longer than the upper.
- Rachis**—The axis of a spike.
- Rhizome**—A creeping, underground stem which roots and develops new plants at the nodes.
- Rough**—Rough to the touch due to minute points or teeth.
- Sheath**—The lower part of the leaf that encloses the stem or shoot.
- Smooth**—Not rough to the touch and without hairs.
- Spike**—An unbranched inflorescence with spikelets attached directly to the axis (not on a pedicel or branch).
- Spikelet**—The unit of the inflorescence of grasses, consisting of two glumes and one or more florets.
- Spreading**—Said of panicles when the branches have an outward direction.
- Stolon**—An above ground creeping stem which roots and develops new plants at the nodes or tip.
- Tawny**—Pale brown or dirty yellow.
- Throat**—The V-shaped area at top of sheath formed by the margins.
- Truncate**—Ending abruptly, more or less straight across.

REFERENCES

The following publications have been found most useful in the preparation of this identification key:

1. Bennett, Hugh W., Hammons, R. O., and Weissinger, W. R., *Identification of Certain Mississippi Grasses by Vegetative Morphology*. Miss. Agr. Exp. Sta. Tech. Bul. 31, 1950.
2. Blomquist, H. L., *The Grasses of North Carolina*. Duke University Press, 1948.
3. Carrier, Lyman, *The Identification of Grasses by Their Vegetative Characters*. U.S.D.A. Bul. 461, 1917.
4. Clark, S. E., Campbell, J. A., and Shevkenek, W., *The Identification of Certain Native and Naturalized Grasses by Their Vegetative Characters*. Dom. of Canada, Dept. Agr. Pub. No. 762, 1944.
5. Copple, R. F., and Aldous, A. E., *The Identification of Certain Native and Naturalized Grasses by Their Vegetative Characters*. Kan. Agr. Exp. Sta. Tech. Bul. 32, 1932.
6. Hitchcock, A. S., *Manual of the Grasses of the United States*. U.S.D.A. Misc. Pub. 200, 1935, 2nd Ed. rev. Chase, Agnes, 1950.
7. Keim, F. D., Beadle, G. W., and Frolik, A. L., *The Identification of the More Important Prairie Hay Grasses of Nebraska by Their Vegetative Characters*. Neb. Agr. Exp. Sta. Res. Bul. 65, 1932.
8. Nowosad, F. S., Newton Swales, D. E., and Dore, W. G., *The Identification of Certain Native and Naturalized Hay and Pasture Grasses by Their Vegetative Characters*. MacDonald College, P. Q. Canada, Tech. Bul. 16, 1936.

INDEX TO SCIENTIFIC NAMES

- Agropyron repens* 202
Agrostis alba 182, 236
 —*canina* 40
 —*hiemalis* 49, 179
 —*palustris* 39, 48, 233
 —*perennans* 185, 232
 —*scabra* 180
 —*stolonifera* 45
 —*tenuis* 30, 44, 220, 234
Alopecurus carolinianus 46, 178
 —*pratensis* 238
Ammophila breviligulata 235
Andropogon gerardi 157
 —*glomeratus* 164
 —*littoralis* 166
 —*scoparius* 167
 —*ternarius* 147, 168
 —*virginicus* 146, 165
Anthoxanthum odoratum 184, 229, 259
Aristida dichotoma 1, 21
 —*oligantha* 7
 —*purpurascens* 14
Arrhenatherum elatius 222, 230, 240, 252, 260
 var. *bulbosum* 221, 239
Avena fatua 199
 —*sativa* 197, 200, 261
Bromus arvensis 134
 —*catharticus* 126
 —*commutatus* 130
 —*inermis* 127
 —*japonicus* 131, 226
 —*mollis* 36, 132
 —*rigidus* 125
 —*secalinus* 129
 —*sterilis* 128
 —*tectorum* 133, 227
Calamagrostis canadensis 193
 —*cinnoides* 192
Cenchrus pauciflorus 57, 85, 110
 —*tribuloides* 84
Cinna arundinacea 186
Cynodon dactylon 4, 55, 72
Cynodon spp. 20
Dactylis glomerata 173
Danthonia compressa 59
 —*sericea* 60, 112
 —*spicata* 18, 23, 37, 58, 114
Deschampsia flexuosa 47
Digitaria filiformis 43
 —*ischaemum* 159
 —*sanguinalis* 152, 198
Distichlis spicata 26
Echinochloa crusgalli 52
 var. *frumentacea* 53
 —*walteri* 51
Eleusine indica 148
Elymus canadensis 211
 —*riparius* 213
 —*villosus* 212
 —*virginicus* 214
Eragrostis capillaris 50, 62
 —*cilianensis* 73
 —*hirsuta* var. *laevivaginata* 71, 77
 —*pectinacea* 22, 35, 61
 —*poaeoides* 24, 34
 —*spectabilis* 64, 80, 241
Erianthus coarctatus 250
 —*contortus* 156, 249
Festuca arundinacea 205
 —*capillata* 6
 —*elatior* 210
 —*myuros* 15, 32, 41
 —*octoflora* 2, 33, 42
 —*ovina* 9, 27
 —*rubra* 8, 28, 31
 var. *commutata* 10
Glyceria acutiflora 171
 —*canadensis* 169
 —*septentrionalis* 172
 —*striata* 124, 170
Holcus lanatus 151, 196, 228, 244, 256
Hordeum brachyantherum 224
 —*jubatum* 139, 225
 —*pusillum* 223
 —*vulgare* 206
Hystrix patula 209, 242
Leersia oryzoides 153, 243
 —*virginica* 155, 216
Lolium multiflorum 208
 —*perenne* 12, 123, 145, 163, 201
Microstegium vimineum var. *imberbe* 218
Miscanthus sinensis 207, 246
 var. *variegatus* 247
 var. *zebrinus* 248
Muhlenbergia frondosa 137, 215
 —*schreberi* 13, 16, 138, 217
Panicum amaralium 95, 117
 —*amarum* 188
 —*anceps* 140
 —*capillare* 65, 79, 90, 113
 —*dichotomiflorum* 121
 —*hemitomen* 69, 88
 —*scoparium* 78, 94
 —*villosissimum* 101
 —*virgatum* 97, 102, 119
Paspalum dilitatum 154
 —*floridanum* 149
 var. *glabratum* 150, 245
 —*laeve* 158
 —*pubescens* 116, 141
Pennisetum spp. 100
Phalaris arundinacea 190, 258
 var. *picta* 191, 257
Phleum pratense 177, 195, 237, 255
Phragmites communis 63, 75, 108
Poa annua 5, 142, 160, 174
 —*compressa* 143, 161
 —*palustris* 176, 183
 —*pratensis* 11, 144, 162
 —*trivalis* 175
Secale cereale 203
Setaria faberii 96, 98, 105, 122
 —*geniculata* 82, 135
 —*italica* 76, 89, 99
 —*lutescens* 66, 83, 109
 —*magna* 86
 —*verticillata* 87, 111
 —*viridis* 74, 91, 93
Sorghastrum nutans 181
Sorghum halepense 189, 253
 —*sudanense* 194, 251, 254
Spartina alterniflora 92, 107
 —*cynosuroides* 120
 —*patens* 38, 54
 —*pectinata* 68, 104, 118
Sphenopholis obtusata 231
Sporobolus asper 17
 —*clandestinus* 3, 29, 219
 —*vaginiflorus* 25
Tridens flavus 81
Triplasis purpurea 103
Tripsacum dactyloides 67, 106
Triticum aestivum 204
Uniola laxa 70, 136
 —*paniculata* 115
Zizania aquatica 187
Zoysia matrella 19
 —*japonica* 56
Zoysia spp. 19

INDEX TO COMMON NAMES

- American beachgrass 235
- Annual bluegrass 5, 142, 160, 174
 - ryegrass 208
 - wildrice 187
- Arrow-feather 14
- Autumn bent 185, 232
- Barley 206
 - little 223
 - meadow 224
 - squirrel-tail 139, 225
- Barnyard grass 52
- Barren chess 128
- Basketgrass 218
- Beachgrass, American 235
- Beardgrass, bushy 164
 - silver 147, 168
 - seashore 166
- Bent, autumn 185, 232
 - colonial 30, 44, 220, 234
 - creeping 39, 48, 233
 - meadow 45
 - velvet 40
- Bent-awn plumegrass 156, 249
- Bermuda grass 4, 55, 72
 - U-3 20
- Big bluestem 157
 - cordgrass 120
- Bitter panicgrass 95, 117
- Bluegrass, annual 5, 142, 160, 174
 - Canada 143, 161
 - fowl 176, 183
 - Kentucky 11, 144, 162
 - rough 175
- Bluejoint 193
- Bluestem, big 157
 - little 167
- Bottlebrush 209, 242
- Bristly foxtail 87, 111
- Bromegrass, field 134
 - smooth 127
- Broomsedge 146, 165
- Bulbous oatgrass 221, 239
- Bushy beardgrass 164
- Canada bluegrass 143, 161
 - wild-rye 211
- Canarygrass, reed 190, 258
- Cheat 129
 - hairy 130
- Chess, barren 128
 - downy 133, 227
 - Japanese 131, 226
 - soft 36, 132
- Chewings fescue 10
- Colonial bent 30, 44, 220, 234
- Common crabgrass 152, 198
 - reed 63, 75, 108
- Cordgrass, big 120
 - prairie 68, 104, 118
 - salt meadow 38, 54
 - smooth 92, 107
- Crabgrass, common 152, 198
 - slender 43
 - smooth 159
- Creeping bent 39, 48, 233
 - mannagrass 171
- Crinkled hairgrass 47
- Cut-grass, rice 153, 243
- Dallis grass 154
- Downy chess 133, 227
 - oatgrass 60, 112
- Dropseed 25
 - scratch 3, 29, 219
 - tall 17
- Dune sandbur 84
- Eastern gamagrass 67, 106
 - mannagrass 172
- Emerald Zoysia 19
- Eulalia 207, 246
 - striped 247
- Fall panicum 121
- Feather grass 63, 75, 108
- Fescue, chewings 10
 - hair 6
 - meadow 210
 - rattail 15, 32, 41
 - red 8, 28, 31
 - sheep 9, 27
 - six weeks 2, 33, 42
 - tall 205
- Field bromegrass 134
 - foxtail 46, 178
 - paspalum 158
 - sandbur 57, 85, 110
- Flat-stemmed panicgrass 140
- Florida paspalum 149
 - smooth 150, 245
- Fly-away grass 180
- Fowl bluegrass 176, 183
 - mannagrass 124, 170
- Foxtail, bristly 87, 111
 - field 46, 178
 - giant 96, 98, 105, 122
 - green 74, 91, 93
 - knotroot 82, 135
 - meadow 238
 - millet 76
 - yellow 66, 83, 109
- Gahi No. 1 millet 100
- Gamagrass, eastern 67, 106
- Giant foxtail 96, 98, 105, 122
 - millet 86
- Goosegrass 148
- Green foxtail 74, 91, 93
- Hair fescue 6
- Hairgrass, crinkled 47
 - spring 49, 179
- Hairy cheat 130
 - paspalum 116, 141
 - wild-rye 212
- Indian grass 181
- Japanese chess 131, 226
 - lawn grass 19
 - millet 53
- Johnson grass 189, 253
- Kentucky bluegrass 11, 144, 162
- Knotroot foxtail 82, 135
- Lacegrass 50, 62
- Lawn grass, Japanese 19
- Little barley 223
 - bluestem 167
- Lovegrass, low 24, 34
 - pink 22, 35, 61
 - purple 64, 80, 241
 - smooth 71, 77
- Maidencane 69, 88
- Mannagrass, creeping 171
 - eastern 172
 - fowl 124, 170
 - rattlesnake 169

- Meadow barley 224
 - bent 45
 - fescue 210
 - foxtail 238
- Meyer zoysia 56
- Millet, foxtail 76, 89, 99
 - Gahi No. 1 100
 - giant 86
 - Japanese 53
 - Walter's 51
 - wild 52
- Mountain oatgrass 59
- Muhly, wirestem 137, 215
- Nimblewill 13, 16, 138, 217
- Oatgrass, bulbous 221, 239
 - downy 60, 112
 - mountain 59
 - poverty 18, 23, 37, 58, 114
 - tall 222, 230, 240, 252, 260
- Oats 197, 200, 261
 - sea 115
 - wild 199
- Orchard grass 173
- Panicgrass, bitter 95, 117
 - flat-stemmed 140
 - white-haired 101
- Panicum, fall 121
 - seaside 188
 - velvety 78, 94
- Paspalum, field 158
 - Florida 149
 - smooth Florida 150, 245
 - hairy 116, 141
- Perennial ryegrass 12, 123, 145, 163, 201
- Pink lovegrass 22, 35, 61
- Plumegrass, bent-awn 156, 249
 - slender 250
- Poverty grass 1, 21
 - oatgrass 18, 23, 37, 58, 114
- Prairie cordgrass 68, 104, 118
 - three-awn grass 7
 - wedgegrass 231
- Purple lovegrass 64, 80, 241
 - sandgrass 103
- Purpletop 81
- Quackgrass 202
- Rattail fescue 15, 32, 41
- Rattlesnake mannagrass 169
- Red fescue 8, 28, 31
- Redtop 182, 236
- Reed canarygrass 190, 258
 - common 63, 75, 108
 - grass 192
- Rescue grass 126
- Ribbon grass 191, 257
- Rice cut-grass 153, 243
- Ripgut grass 125
- Riverbank wild-rye 213
- Rough bluegrass 175
- Rye 203
- Ryegrass, annual 208
 - perennial 12, 123, 145, 163, 201
- Salt meadow cordgrass 38, 54
- Saltgrass, seashore 26
- Sandbur, dune 84
 - field 57, 85, 110
- Sandgrass, purple 103
- Scratch dropseed 3, 29, 219
- Sea oats 115
- Seashore beardgrass 166
 - saltgrass 26
- Seaside panicum 188
- Sheep fescue 9, 27
- Silver beardgrass 147, 168
- Six weeks fescue 2, 33, 42
- Slender crabgrass 43
 - plumegrass 250
 - uniola 70, 136
- Smooth bromegrass 127
 - crabgrass 159
 - cordgrass 92, 107
 - Florida paspalum 150, 245
 - lovegrass 71, 77
- Soft chess 36, 132
- Spring hairgrass 49, 179
- Squirrel-tail barley 139, 225
- Stinkgrass 73
- Stout woodreed 186
- Striped eulalia 247
- Sudan grass 194, 251, 254
- Sweet vernalgrass 184, 229, 259
- Switchgrass 97, 102, 119
- Tall dropseed 17
 - fescue 205
 - oatgrass 222, 230, 240, 252, 260
- Three-awn grass, prairie 7
- Timothy 177, 195, 237, 255
- U-3 Bermuda grass 20
- Uniola, slender 70, 136
- Velvet bent 40
 - grass 151, 196, 228, 244, 256
- Velvety panicum 78, 94
- Vernalgrass, sweet 184, 229, 259
- Virginia wild-rye 214
- Walter's millet 51
- Wedgegrass, prairie 231
- Wheat 204
- Whitegrass 155, 216
- White-haired panicgrass 101
- Wild oats 199
 - millet 52
- Wildrice, annual 187
- Wild-rye, Canada 211
 - hairy 212
 - riverbank 213
 - Virginia 214
- Wirestem muhly 137, 215
- Witchgrass 65, 79, 90, 113
- Woodreed, stout 186
- Yellow foxtail 66, 83, 109
- Zebra grass 248
- Zoysia, Emerald 19
 - Meyer 56

